

**INTERRACIAL INTERACTIONS: EXECUTIVE FUNCTIONING AND
SELF-REGULATION**

by

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Abstract

This is a theoretical study that analyzes previous research regarding interracial interactions and the subsequent executive function impairment that occurs as a result. Utilizing 13 studies, a meta-analysis is conducted that examines the differences in anxiety levels and cognitive impairment that results from an interracial interaction when racially charged topics are used as a discussion point, and when they are absent from the interaction altogether. Based on the comparison of interactions that utilize racially charged topics, compared to interactions that omit them, a conclusion can be drawn that indicates that regardless of topic, individuals experience notable anxiety and executive function impairment after an interracial interaction. However, results from these studies also indicate that certain contextual conditions can lessen the impairment of interracial interactions through decreasing the need to self-regulate, via social roles and interactions moderated by mutual benefit.

Interracial Interactions: Executive Functioning and Self-Regulation

When acknowledging the rising ethnic diversity within the United States, one can surmise that interracial interactions are at an all-time high. Whether it's in the workplace, the supermarket, or any given social event, interracial interactions are essentially a daily occurrence. Subsequently one would assume that due to the high occurrence of racial and ethnic groups interacting, that many groups would adapt and find these interactions to be quite normal. However, research suggests that interracial interactions are actually a catalyst for distress and discomfort (Avery et al., 2009). The notion of interracial interactions causing distress, regardless of its high occurrence has influenced researchers to delve into the potential cognitive effects that such an interaction would have on individuals. Research has indicated that as a result of interracial interactions, resource depletion occurs, and there is a subsequent cognitive decline and impairment of executive functioning. (Avery et al., 2009; Richeson & Trawalter, 2005; Richeson & Shelton, 2003). Research conducted by Richeson and Trawalter (2005), for example, has established that the resource depletion that occurs is directly linked to efforts to self-regulate and consciously avoid seeming prejudice. This occurrence of cognitive decline and resource depletion has been solidified to exist for both White individuals and Black individuals, and is directly linked to high racial bias. Studies show that there is a correlation between high racial bias and high levels of resource depletion after an interracial interaction. (Richeson & Trawalter, 2005). Furthermore, studies have been conducted linking the cognitive decline associated with resource depletion with neurological activity in brain regions associated with executive functioning (Richeson et al., 2003). While most studies point towards interracial interactions causing notable cognitive decline and impairment of executive functioning, the majority of these

studies rely on interracial interactions that primarily concern themselves with topics of discussion associated with race. Fewer studies have been conducted when the topic of discussion is neutral and unrelated to race, (Trawalter & Richeson, 2008). Hence, it is not well known whether neutral interaction topics cause similar cognitive decline. To this end, the purpose of this thesis will address this issue by providing an integrative review of current theory and research on interracial interactions when the topic of the interaction discussion is racialized versus when the topic of discussion is neutral. This thesis is a synthesized examination of whether or not the topic of race affects the level of cognitive decline and other related outcomes (e.g., anxiety) that are associated with interracial interactions. By examining the nature of the parameters that each study employs surrounding the interaction itself, the given data can be used to draw conclusions on whether or not the manipulation of the topic of race utilized as a discussion point within an interracial interaction causes increased distress and subsequent resource depletion in comparison to more neutral topic discussions.

Interracial Interaction's Effect on Executive Functioning: Race as a Topic Discussion

Previous studies indicate that cognitive faculties such as executive attention are a limited resource (Engle, 2002). Executive attention can be described as one's ability to regulate reactionary responses to social interactions and conflict situations. When exercising executive attention within any given interaction, research has found that performance impairment occurs in subsequent tasks that require similar executive attention (Baumeister, et al., 2000). A study conducted by Richeson and Trawalter (2005) utilized these previous ideas to propose that

interactions between interracial groups can be a distressing occurrence to the extent of impairing executive functioning, as a result of over-regulation of the stress that is responsive to interracial interactions. Three studies were conducted to test the various aspects of cognitive resource depletion as a response to interactions between interracial groups. The initial experiment sought to investigate whether an interracial interaction would have greater impact on inhibitory task performance, compared to a same-race interaction. Additionally, the study sought to investigate the effect that increasing self-regulatory demands would have on an inhibitory task performance. To test this, White participants completed the Implicit Association Test, which was used to measure racial bias. Participants were then given false feedback regarding their IAT results. In the performance feedback condition, participants were told the task was used to study category associations and that most people perform worse than they think they did. In the prejudice feedback condition, participants were told the task was used to study racial bias and that most people are more prejudiced than they think they are. These bifurcated groups were created to test whether or not increasing one's awareness of their own prejudice levels would affect overall cognitive decline and Stroop impairment as a result of the interracial interaction. Participants were then led to a room in which they interacted with either a Black experimenter or a White experimenter. Each participant was given an array of topics to discuss with their respective experimenter, including race-related topics. Participants were then brought back to the initial experimenter and were tasked with completing the Stroop Color-Naming test, which is a measure of inhibitory performance. The results indicated that individuals who interacted within interracial interactions experience far more inhibitory task performance compared to individuals who participated within same-race interactions. Furthermore, participants who received prejudice feedback prior to engaging in an interracial interaction received the highest inhibitory task

performance, with far more Stroop impairment when compared to individuals that received the performance feedback. These results indicate that interracial interactions cause high levels of cognitive decline and that the inclusion of a mental focus on the concept of prejudice causes increased self-regulation and subsequent executive function depletion during interracial interactions.

A second experiment was conducted in order to further investigate the presence of resource depletion as a result of self-regulation during interracial contact by reducing the self-regulatory demands of the interaction. This study contained similar procedures, except that half of the participants were provided with a scripted response to follow for the interaction. The script was expected to relieve concern for the individual because they would not have to take ownership for the ideas. Half of participants were given a script about racial profiling by the experimenter in preparation for the interaction and the other half were given a blank page and told to take a minute or two to prepare a response on the same topic. Participants then went on to have either a same-race or interracial interaction and then completed the Stroop task. The current study hypothesized that participants without a script would show greater impairment on the subsequent Stroop task after an interracial interaction, compared to participants provided with a script. The results revealed that participants in the script condition showed less impairment on the Stroop task than those in the no-script condition. Furthermore, participants in the no-script condition were more impaired during the interracial interaction than those who had a same-race interaction. Thus, scripts appear to alleviate the need for self-regulation, indicating that the content of what is said may be a concern for individuals who engage in interracial interactions.

A third experiment followed similar procedures to the previous two, but investigated the misattribution paradigm, which refers to the redirection of potential arousal to a benign source.

The misattribution paradigm refers to a behavior in which humans misattribute their reasons for internal responses to stimuli. This notion is founded upon the idea that misattributing anxiety to arbitrary and benign sources would mitigate the negative impact of inhibitory task performances after an interracial interaction. It was predicted that misattributing anxiety would decrease the need to self-regulate, and therefore lead to less impaired results on a given Stroop test.

Participants in the misattribution condition were told that previous participants had experienced anxiety during the study as a result of the room containing a one-way mirror, while participants in the control group were given no additional information. They then went on to have either an interracial interaction or a same-race interaction, and then took the Stroop task. The results indicated that reducing a participant's need to self-regulate through utilizing the misattribution paradigm reduced subsequent impairment on the Stroop test in comparison to the control group, and additionally consistent with the first experiment, individuals that engage within interracial interactions experience far more inhibitory task performance and executive function depletion compared to individuals that engage within same-race interactions. Collectively, these studies provide significant evidence that self-regulatory demands within an interracial interaction causes subsequent impairment of executive functioning, as a result of resource depletion. Further research has been conducted to investigate the cognitive cost of the self-regulatory demands of interracial interactions. A study from Richeson and Trawalter (2006) examined whether regulatory focus, the process of bringing oneself into alignment with one's standards and goals, would moderate this effect. In particular, regulatory focus theory suggests that there are two different approaches to goal fulfillment, including promotion focus and prevention focus. Both focus types aim to accomplish a positive outcome, but promotion focus emphasizes the potential for a positive outcome while prevention focus emphasizes the potential for a negative outcome.

The researchers hypothesized that individuals who utilize a promotion focused approach in interracial interactions would experience less cognitive impairment when compared to those with a prevention focus. To examine these ideas, White participants were instructed prior to an interracial interaction to either: utilize a prevention focus where they were to refrain from saying something prejudice, utilize a promotion focus where they were to focus on having an enjoyable interaction, or were given no prior instruction. The idea of a prevention focus leading to higher levels of self regulation is founded upon the assumption that an individual would have to exert more energy to self-moderate and regulate sentiments of prejudice to complete their goal, while a promotion strategy would lead to less self-regulation, leaving all topics open to discussion as long as they encourage enjoyable discourse. The results from the study indicated that prevention participants performed worse on the Stroop test than participants in the promotion method group. This indicates that prejudice prevention tactics utilized during interracial interactions lead to greater self-regulation and thus more executive functioning impairment. Furthermore, this data corroborates the notion that executive functioning impairment is a result of interracial interactions causing resource depletion as a result of self-regulation. This is founded upon the notion that promotion of active engagement and positive interactions, rather than an emphasis on self-regulation and prejudice avoidance, leads to less cognitive decline.

In order to further examine the nature of executive function depletion as a result of interracial interactions a study was conducted that sought to investigate the effects of interracial interactions on executive functioning through measurement of brain activity in the dorsolateral prefrontal cortex and its correlation with impairment on inhibitory task performance (Richeson et al., 2003). According to resource depletion theory, executive attention is a finite renewable resource that can have moments of depletion. Thus, the study surmised that as a result of high

response inhibition, those who have high racial bias will experience notable impairment on response tasks as a result of resource depletion, and that there will be corresponding brain activity in the regions associated with executive functioning. (Engle, et al., 1995). The initial experiment sought to investigate whether brain activity associated with executive functioning, namely, the dorsolateral prefrontal cortex and anterior cingulate cortex would mediate the relation between racial attitude bias and inhibitory task performance. It was hypothesized that high racial bias would be associated with brain activity in the dorsolateral prefrontal cortex and the anterior cingulate cortex and this activity would correlate with impaired task performance on the Stroop test. Fifteen White participants first completed a measurement of racial bias via the IAT and then were presented with photos of Black male faces while their brain activity was measured. The aim of this was to see if high racial bias would correlate with activity within the areas of the brain related to executive control, when an individual of a different race was visually present. Participants then engaged in an interracial interaction and a subsequent Stroop task performance. The data from the experiment indicated that high racial bias (in comparison to low) on the IAT predicted activity in the right dorsolateral prefrontal cortex in response to the images of Black male faces, and furthermore participants with activity within this region performed poorly on the Stroop. Thus, establishing a potential correlational relationship between activity in the dorsolateral prefrontal cortex and consistent Stroop impairment. A second experiment was then conducted to see if activity within the dorsolateral prefrontal cortex would predict performance impairment on executive functioning after a same-race interaction. Using the same procedures as study one, the findings showed that brain activity and executive functioning depletion via the Stroop was not statistically significant. These findings affirm the notion that interracial interactions, not same-race interactions, lead to executive function impairment as a

result of resource depletion and high racial bias maintains a correlational relationship with brain activity in the dorsolateral prefrontal cortex. With the established works indicating that White individuals, experience high levels of executive attentional resource depletion as a result of interracial interactions (Richeson & Trawalter, 2005), an additional study was conducted by Richeson and Trawalter (2005) in order to examine whether engaging in interracial interactions also depletes the executive resources of Black individuals. The study predicted that Black individuals who recorded high levels of racial bias recorded through an IAT test would experience similar levels of cognitive depletion and inhibitory task performance after interracial interactions. The study informed Black participants that they were engaging in a study that was examining “Serial Cognition.” Participants were then tasked with completing an Implicit Association Test (IAT). Participants were then tasked with engaging in either a same-race interaction or an interracial interaction. The interaction was filmed and each participant provided their opinions on several different topics, with one topic specifically pertaining to race. Participants then completed a Stroop task which acted as a measurement of inhibitory performance. The results indicated that participants who maintained high racial bias towards White individuals recorded through the IAT resulted in higher impairment on the subsequent Stroop task, after an interracial interaction, compared to individuals who engaged in same-race interactions. Thus, the more racial bias a Black participant maintained, the higher a participant’s resource depletion would be after an interracial interaction, which is consistent with previous research using White participants. This data supports the notion that interracial interactions cause resource depletion and executive function impairment for both White Individuals and Black individuals.

Interracial Interaction's Effect on Executive Functioning and Anxiety: When Race Is Not a Topic Discussion

While the previous studies have all solidified that interracial interactions do in fact cause executive function depletion, each of these studies establish their data upon interracial interactions that utilize racially charged topics to act as focal points within the interaction. There are studies, however, that investigate the effects of interracial contact when the topic of race is omitted. These findings explored how context and topic affect the results of interracial interactions.

Babbitt and Sommers (2011), for example, examined the contexts under which executive functioning depletion is increased or decreased in both Black and White participants. In particular, the researchers were interested in seeing how shifting the context or nature of interactions to one that is task-focused would affect executive functioning when compared to interactions that are more social-focused. They predicted that both White and Black participants would experience more positive outcomes, or less resource depletion, when instructed to focus on completing problem-solving tasks with a person of a different race than the pairs that were instructed to focus on the social aspect of the interactions. Participants contained interracial dyads that were either in the social-focus, task-focus, or control focus condition. Those in the social-focus condition were told the study examined social interaction, that their tasks were icebreakers, and that they would later have to answer questions about their partner. Those in the task-focus condition were told the study was on performance, to focus on getting as many correct answers, and that the top scoring dyad would receive a monetary bonus. Those in the control condition were only told to work on tasks together. The tasks included both race-neutral and race-relevant material and utilized creative, logical, and social skills. Following these

interactions, both Black and White participants completed the Stroop task and took the IAT. The results revealed that Black participants experienced less cognitive impairment on the Stroop task in the task-focused condition when compared to the social-focused condition. While White participants showed a similar pattern of results, the difference between the two conditions were not statistically significant. This could potentially show that for at least Black individuals, focusing on a task rather than the social element of an interracial interaction may alleviate some stress of the interaction and cause less cognitive impairment. The same could potentially be the case for White individuals, but more research is necessary in order to make this claim. White Americans typically avoid interracial contact, in order to circumvent discomfort. In spite of this, when assessing current workplace environments, interracial contact is at an all-time high (Combs & Griffith, 2007). Therefore, a study was conducted to establish proper ways to navigate interracial interactions within a workplace environment, with the hopes of establishing proper conduct to organizational success (Avery et al., 2009). Founded upon the notion that workplace roles provide norms and scripts for individuals to circumvent the distress of casual and amorphous interactions with strangers, the current study surmised that when provided with an accessible script to guide behavior, White individuals will experience far less resource depletion when engaging within interracial interactions. The employment of social roles and scripts as a mitigating factor to anxiety further explores the level of cognitive depletion one experiences as a result of interracial interactions when the topic of race is omitted from the interaction.

The initial study examined 48 White American female students as they were videotaped while being instructed to have a conversation with a fellow participant, and were informed that the study was seeking to examine “communication via different media, namely video and telephone.” Each participant was then assigned to either a Black or White target discussing their

favorite movie. Each participant was then filmed and tasked to state their favorite film. This manipulation was used to examine whether or not each participant exhibited any ostensible discomfort before the interaction. Participants then engaged in a videotaped telephone conversation with either a White or Black female partner. Each participant was also assigned to either a scripted or unscripted category. The scripted category had each participant act as either an interviewer or an applicant and then had each participant rate their confederate partner. A 9-point scale was then used by 11 judges on the level of non-verbal discomfort displayed by each participant at the start of each interaction, and 10 judges on the interaction itself. Results indicated that participants displayed higher anxiety levels prior to the assignment of social roles when interacting with Black partners, when compared to White partners. Furthermore, higher anxiety levels were present within participants in non-scripted interactions with Black partners, compared to non-scripted interactions with White participants. No increase of anxiety was detected when participants were placed into scripted interactions with both Black partners and White partners. This data supports the notion that scripted encounters lead to less distress and anxiety in White individuals when engaging in interracial interactions.

In order to further examine the influence of social scripts in interracial interactions, a second experiment was conducted with both male and female in either same-race or interracial face-to-face interactions. The study hypothesized that interracial dyads would engender more anxiety and discomfort for White individuals than same-race interactions, especially when the interaction is unscripted. Sixty White participants and 30 Black participants were assigned to either a scripted or a non-scripted role. Participants in the scripted condition were tasked with partaking in a mock job interview and were either assigned to an interviewer position, or an applicant position. Participants in the unscripted condition were simply assigned to a

conversation partner. Each participant was then videotaped and tasked with their respective interaction. A 9-point scale was then used by 12 judges to determine the non-verbal discomfort of each participant during their interaction. The results indicated that participants in the interracial interaction group showed less signs of discomfort in scripted roles, when compared to unscripted roles. Thus, this data affirms the notion that Black-White dyads cause more distress for White individuals, when tasked with interactions without proper social scripts. This study in summation showcases that when social roles are in place, less self-regulation is needed within interracial interactions. That is to say, when there are not active roles to guide the interaction, and the interracial interaction is purely social, White individuals experience high levels of anxiety that they must regulate.

While both of the previous studies exemplify that various contextual elements can mitigate interracial interactions to be less fraught with anxiety and cognitive decline, in the absence of purely racially charged interracial interactions, very few studies have compared racially charged and neutral discussions directly. An exception comes from a recent study that considered the role of discussion topics during interracial interactions on interracial anxiety as expressed through nonverbal behaviors in both White and Black individuals (Trawalter & Richeson, 2008). The study made several predictions. They predicted that interracial interactions would be more stressful for White participants than Black participants. They also predicted that interracial interactions would be more stressful for White individuals when compared with same-race interactions. Importantly, it was predicted that race-related conversations would be more stressful for White participants than race-neutral conversation during an interracial interaction. Additionally, the study predicted that race-related topics would cause less distress during an interracial interaction for Black participants, compared to race-neutral topics.

Black and White undergraduate student participants engaged in a discussion with a naïve partner who was also a participant and discussed three conversation topics that included: campus fraternities, social drinking policy, and the college's efforts to diversify the school. The study contained both interracial dyads, and White same-race dyads. The interaction lasted 10 minutes and was recorded. Participant levels of anxiety were later coded by how avoidant and anxious physical behavior appeared during the interaction. The results revealed that White participants behaved more anxiously during interracial interactions compared to same-race interactions. Additionally, White participants, within interracial interactions, behaved more anxiously than Black participants regardless of discussion type. Black participants displayed less anxiety during race-related discussions compared to race-neutral discussions (Trawalter & Richeson, 2008). As expressed in their hypothesis, the researchers suggest that Black individuals may have found race-related conversations less stressful because they have more practice talking about race. One of the distinct takeaways from this research is the differences in what Blacks and Whites find stressful during these interactions. Whites visibly expressed more anxiety overall during interracial interactions regardless of the discussion. This may not mean that Black individuals do not experience anxiety, but that they may have more practice managing this anxiety in conversation with White individuals. The results of this study display the divergence in individuals' experiences as a function of race and how the causes of interracial anxiety are different despite similarities in executive function depletion.

Discussion: Research in Summation

The research provided from all of these studies in a holistic view lends itself to the notion that, regardless of the inclusion of the topic of race, individuals experience executive function depletion to some varying degrees after an interracial interaction. However, the data

supports the notion that there are ways to lessen and mitigate this impairment of cognition. When individuals participate in interracial interactions that have contextual elements that can help decrease the need to self-regulate and self-monitor behavior and prejudice levels, the individual can circumvent typically engendered cognitive decline. This is especially true for interactions that omit the topic of race (Babbitt & Sommers, 2011; Richeson & Trawalter, 2008). The study conducted by Babbitt and Sommers (2011) showcases that having mutual goals and benefits within the interaction lessens the need for self-regulation, and thus less cognitive decline. Furthermore, the study conducted by Richeson and Trawalter (2008) indicates that social roles, such as job dynamics, help employ a structure for individuals that guide the interaction, allowing there to be less of a need to self-regulate one's anxiety. It seems as if pure socialization causes the highest levels of stress, anxiety, and executive function impairment. Additionally, when an individual is primed and focused on concepts of prejudice during an interracial interaction, they are far more inclined to experience stress. That is to say, a possible reason for social roles and mutual goals acting as mitigating factors for anxiety could lie in their ability to supersede or distract from a need to seem less prejudiced. Something to note within this paradigm is that results heavily exemplify that Black individuals consistently experience far less anxiety than White individuals within interracial interactions, regardless of whether or not the interracial interaction is purely social. An explanation for this could come from their position as a minority and having to consistently come in contact with a White majority, and having less means to stay insular as a community may result in their mental flexibility and practice at self-regulation within interracial interactions. This provides a positive notion that if White individuals continue to engage within interracial interactions, for purely

social reasons, while they may at first experience adverse mental reactions, eventually they will experience less and less executive function impairment as a result.

There are many avenues to further explore this topic. Primarily, there is a considerable lack of research on how the inclusion and exclusion of race as a topic affects interracial interactions. Should further studies directly compare race-related topics to unrelated topics within interracial interactions, a more viable conclusion could be drawn on the nature of whether or not racially charged topics affect the level of anxiety and cognitive impairment that is experienced by individuals that engage within interracial interactions.

In closing, interracial interactions, whether they be racially charged or neutral are complex and challenging. While it is true that certain rhetoric and contextual frames can steer interactions away from a definite focus on the cultural and racial differences within an interracial interaction, individuals still experience notable baseline anxiety and subsequent cognitive decline as a result of engagement with disparate groups. As our country continues to diversify and culturally disseminate, it is imperative that we as a people continue to socialize and interact with the sole purpose of building community. Such is the only way to eventually quell our anxieties towards interracial interactions.

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