WHEN DOES PERSPECTIVE-TAKING INCREASE PREJUDICE REDUCTION AND DECREASE META-STEREOTYPES?

AN ABSTRACT
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BY
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Abstract

The effect of perspective-taking on intergroup relations is not as clear cut as many scientists once thought. Vorauer & Sasaki (2009) found that group context moderated the relationship between perspective-taking and prejudice reduction. In intergroup interactions (but not intragroup interactions), perspective-taking with the outgroup led to negative meta-stereotype activation which, in turn, impeded prejudice reduction. The current study attempted to replicate Vorauer & Sasaki (2009) using a larger sample and assessing the effects in a different intergroup context (i.e., American sample). White participants (N = 289) were randomly assigned to either take the perspective or remain objective while watching a video about a Black woman in America. The participants were then told they would be discussing the video with another White student or a Black student. Participants that were told to take the perspective of the woman in the video did report higher levels of empathy towards the woman (p < .001) than participants told to remain objective. Unfortunately, participants did not report any changes in prejudice attitudes or meta-stereotype activation/endorsement across the four conditions (p’s > .094). These results suggest that perspective-taking interventions aimed at reducing prejudice should be approached with caution. Specifically, taking the perspective of an outgroup member may not always lead to a reduction in prejudice attitudes. Implications and future directions around perspective-taking interventions are discussed.
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When Does Perspective-Taking Increase Prejudice Reduction and Decrease Meta-Stereotypes?

Remember the Titans is a movie that follows the story of the Titans football team, one of the first racially integrated high school football teams in the United States. The movie starts out with White parents and students being upset that Black families are moving into their small town. They are even more upset that Black football players join the football team, and a Black man is hired as the new football coach. At the start, even the White and Black teammates do not get along. Then, after tough training, racist events, and winning the championship game, the town as whole learns to work together and everyone becomes close friends. As one of the characters states towards the end of the movie, “People say that it can’t work, black and white; well, here we make it work, every day.”

Psychological research has demonstrated that social interactions do not always end so positively. Interacting with individuals of different social groups can be stressful, even when those involved have positive intentions (e.g., Stephan & Finlay, 1999, Stephan, 2014).

When it comes to improving intergroup relations, perspective-taking as a prejudice reduction intervention is one well-studied strategy (see Vorauer, 2013; Todd & Galinsky, 2014). Perspective-taking is defined as the process of cognitively taking the mindset of another person or attempting to see a situation from another person’s point of view (Davis, 1983; Davis & Maitner, 2009). People who perspective-take more tend to report happy relationships, less prejudiced attitudes, and overall better relationships than those
who intergroup research, perspective-taking has been linked to better intergroup contact and a decrease in prejudiced attitudes and behaviors (Galinsky & Ku, 2004; Pettigrew & Tropp, 2013; Shih et al., 2009; Simon et al., 2019). Manipulating perspective-taking by having people actively think about another person in a specific situation has also led to an increase in helping behaviors, an increase in prosocial outcomes, and a decrease in stereotyping (Adida et al., 2018; Galinsky et al., 2008).

Although much of perspective-taking research has suggested that having people take the perspective of someone else can improve social interactions, there are times when perspective-taking can result in less ideal outcomes. Perspective-taking can have potential costs in intergroup interactions, such as reactive egoism, increased feelings of threat, and increased defensiveness (Epley et al., 2006; Sassenrath et al., 2016; Vorauer, 2013). In their theoretical work on perspective-taking leading to both costs and benefits in interpersonal interactions, Vorauer (2013) argued that one important factor that can result in perspective-taking harming interpersonal interactions is the potential for evaluation through the process of forming metaperceptions/meta-stereotypes. Metaperceptions refer to the cognitive process of forming impressions of how other people or groups view you or your social groups (Kenny & Depaulo, 1993; Shrauger & Schoeneman, 1979). Meta-stereotypes are a specific type of metaperception and refer to perceptions one has about an outgroup’s stereotypes towards the person’s ingroup (Best et al., 1977; Klein & Azzi, 2001; Sigelman & Tuch, 1997; Vorauer et al., 1998). For example, a White person may be asked about the stereotypes they believe Black people
have about White people. These meta-stereotypes have the potential to impact interactions and increase stress between social groups (Vorauer & Sasaki, 2009; Vorauer et al., 1998). Vorauer and Sasaki (2009) experimentally tested the impact of perspective-taking on meta-stereotype activation in intergroup interactions and determined that having a White Canadian take the perspective of an Indigenous Canadian\(^1\) in a context where they would be interacting with another Indigenous Canadian resulted in increased meta-stereotype activation compared to participants interacting with a White Canadian or those interacting with an Indigenous Canadian but did not take the perspective of Indigenous Canadians. This increase in meta-stereotype activation was also related to less prejudice reduction.

Clearly, the process of perspective-taking and the effects it has on attitudes and behaviors is complex. The goal of the current research was to better understand perspective-taking and its impact on meta-stereotypes and intergroup relations. Specifically, I wanted to replicate the research by Vorauer and Sasaki (2009) with a White American sample. I expected to find similar results and demonstrate how perspective-taking in social interactions can impact both meta-stereotypes and prejudiced attitudes. Below, I discuss the research on perspective-taking and intergroup relations by starting with research on when perspective-taking can improve interactions. I then discuss both experimental and theoretical work that highlights when perspective-taking has more negative outcomes for intergroup interactions (e.g., increased intergroup anxiety, increased prejudice). Finally, I tie the research on meta-stereotypes to intergroup contexts

\(^1\) In the original study, the authors referred to Indigenous Canadians as Aboriginal Canadians. In order to respect the population and in accordance with current race/ethnicity terms in Canada, I refer to this population as Indigenous Canadians.
to better understand how perspective-taking impacts interactions by influencing how people believe others will view them in social situations.

**The Benefits of Perspective-Taking**

Prejudiced attitudes and beliefs harm intergroup interactions (e.g., Dovidio et al., 2002; Dovidio et al., 1997; Tropp & Molina, 2012). White Americans who report higher prejudice towards other racial groups also report more willingness to discriminate against the group, less support for egalitarian social policies, and less openness to social changes compared to those lower in prejudice attitudes (Jones & Dovidio, 2018; Harell et al., 2016; Stewart et al., 2010). Attempts to create prejudice reduction methods have led to theories such as Intergroup Contact Theory (Pettigrew, 1998; Pettigrew & Tropp, 2006; 2008), which focuses on how contact with different social groups can change prejudiced attitudes. One of the most widely studied techniques for reducing prejudiced attitudes is perspective-taking (Galinsky et al., 2005; Pettigrew & Tropp, 2008; Sassenrath et al., 2016; Vorauer, 2013).

One of the earliest studies to examine the effect of perspective-taking in intergroup interactions was the research by Batson, Polycarpou, and colleagues (1997). In their first study, they had participants read about a woman with AIDS. Participants were either given information that suggested the woman was responsible for her diagnosis (i.e., she had sexual interactions with several people) or was not responsible for her diagnosis (i.e., she had a blood transfusion). Before reading about the woman, participants were told to either take her perspective or to remain objective. Overall, the participants who took the perspective of the woman with AIDS reported more positive attitudes towards
people with AIDS (as a whole group) than the participants who were told to remain objective. The responsibility for the diagnosis had no impact on the results.

In the two follow-up studies, Batson, Polycarpou, and colleagues (1997) used the same empathy manipulation to assess how taking the perspective of a homeless man (Experiment 2) or a man convicted of murder (Experiment 3) could impact people’s attitudes towards people experiencing homelessness as a group (Experiment 2) and people convicted of murder as a group (Experiment 3). Across the studies, participants who were told to take the perspective of a specific outgroup member reported more positive attitudes towards the outgroup as a whole than people who were told to remain objective. Furthermore, Experiment 3 also determined that perspective-taking could have long-term effects, given that participants in the empathy condition reported more positive attitudes than the objective condition, even weeks after the initial study.

According to the self/other overlap model, perspective-taking leads people to view a target as more similar to themselves, and this sense of commonality between the person and the target results in attitude or behavioral change (e.g., Chen et al., 2021; Galinsky & Moskowitz, 2000; Vescio et al., 2003; Wu & Zhang, 2021). Galinsky and colleagues (2005) argue that the need for social bonds is a major driving force in this model. When a person takes the perspective of another human, the person also notices more similarities between them and the target. Given that people have a need to form meaningful social bonds with other humans, this increase in self/other overlap results in the person also realizing there is a potential to form a relationship with the target. This potential to form a meaningful relationship then motivates the person to engage in behaviors that would increase the likelihood that a new social bond is formed between
them and the target. The tendency to want to form meaningful social bonds with people may relate to why perspective-taking has been shown to increase cooperation in group settings (Galinsky et al., 2008).

From an intergroup relations approach, perspective-taking can also impact group behaviors and interactions among social groups (Clore & Jeffery, 1972; Galinsky et al., 2008; Vorauer et al., 2009). Researchers often have members of one social group (e.g., a White participant) take the perspective of members of a different social group (e.g., a Black individual) and compare those results to the results of a person who does not take the perspective of the out-group member (Clore & Jeffery, 1972; Galinsky et al., 2008; Galinsky & Moskowitz, 2000; Miron at el., 2020; Zebel et al., 2009). The process of taking another person’s perspective allows members of one social group to get a better understanding of how an out-group member might be affected in certain situations or by different events. This change in perspective can then help increase self/other overlap and change social group-based attitudes and behaviors. Additionally, perspective-taking can improve business relationships between groups (Galinsky et al., 2008), and increase support for victims of discrimination (Simon et al., 2019). In fact, having people take the perspective of a woman who was a victim of sexism in the workplace led them to view her case of discrimination as more legitimate (Simon et al., 2019).

Perspective-taking can also impact people’s empathy and emotions (Batson et al., 2002; Batson et al., 1997; Shin et al., 2012; Shin et al., 2009), how they explain other’s behaviors (Vescio et al., 2003), how they evaluate their own attitudes and behaviors (Galinsky & Ku, 2004; Galinsky & Moskowitz, 2000), and their levels of shared social identities with different social groups (Dovidio et al., 2004). It is through these different
mechanisms that actively taking the perspective of another person can reduce one’s prejudiced attitudes towards different social groups. In fact, perspective-taking has been determined as one of the strongest factors to improve the effectiveness of intergroup contact on prejudice attitudes according to Intergroup Contact Theory (see Pettigrew & Tropp, 2008).

The Costs of Perspective-Taking

Although perspective-taking can have a positive effect on intergroup relations in many situations, psychologists have focused on how certain factors (e.g., evaluations from outgroup members, ambiguity around appropriate behaviors) can result in an egocentric focus from the perspective-taker (Vorauer, 2013; Vorauer & Sasaki, 2009). This reactive tendency to behave egotistically may also result in meta-stereotype activation, which can impact prejudice attitudes (Vorauer, 2013). When asked to take the perspective of an out-group member, the individual may focus on perceived cynical motivations from the out-group member that would have otherwise been overlooked. In reaction to the realization that out-group members may be motivated by self-interests, the individual will display increasingly selfish behaviors in favor of their own in-group (Epley et al., 2006; Esser & Komorita, 1975; Vorauer, 2013).

Epley and colleagues (2006) coined the term reactive egoism to help explain why perspective-taking could result in increased selfish behaviors. Reactive egoism is defined as an egoistic or self-serving bias that is in response to one’s understanding that another person (usually an out-group member) may act in their own best interest (Epley et al., 2006; Epley & Caruso, 2012). The self-serving bias of reactive egoism results in a person behaving selfishly in an attempt to protect against the potentially negative outcomes
stemming from an out-group member behaving selfishly. The argument is that, when people are told to take the perspective of another person, this shift in focus to other person’s perspective results in behaviors that are now largely determined by what people see when they look into the minds of another (i.e., metaperceptions). Therefore, these metaperceptions could result in a sense of cooperation/commonality or a sense of competition/threat. Reactive egoism happens when feelings of competition or threat are present and people are reminded that others are motivated to act selfishly based on in-group favoritism (Brewer, 1999; Miller & Ratner, 1998).

Epley and colleagues (2006) examined the effects of perspective-taking in intergroup contexts when an out-group was either competing with or cooperating with one’s in-group. Participants were given information regarding grant money from their university and were asked to report how much money a single student should get per grant. The participants were told to either take another student’s perspective or to think of themselves during the study. Participants who were told to take the perspective of another student reported wanting more grant money themselves (i.e., increased selfish behavior) than participants who were told to think of themselves. Furthermore, the amount of money participants requested for themselves was mediated by how much grant money the participant thought the other student would ask for, demonstrating reactive egoism. To determine how cooperation may impact the results, Epley et al. (2006) had participants in the second study complete a baking task in groups. Participants were told either the activity was competitive (i.e., researchers would vote on the best-rated overall cookie between the groups) or cooperative (i.e., researchers would vote on all the cookies and provide an average score across groups). Participants were then told that there was a
limited number of chocolate chips for baking and were allowed to take how many chocolate chips they wanted for their cookie recipe. In the perspective-taking condition, participants were given instructions to take the perspective of the other group before taking their chocolate chips. In the control condition, participants were told to think about themselves when taking the chocolate chips. The participants in the competitive/perspective taking condition reported similar reactive egoism results to the first study (i.e., they used more chocolate chips than participants in the competitive/self-focus condition and this effect was related to the fact that they thought the other group would take more chocolate chips than participants in the competitive/self-focus condition). Interestingly, this reactive egoism effect was not present in the cooperation conditions. Participants who took the perspective of the other group in the cooperation condition used fewer chocolate chips than participants who were told to think of themselves in the cooperation condition. These results suggest that taking the perspective of another person or group does increase self/other overlap, but this increase in self/other overlap does not always benefit social interactions. In fact, self/other overlap may result in people viewing the out-group as more of a threat and may increase egocentric thinking.

Building from the research on reactive egoism as well as her own research, in her review of perspective-taking research, Vorauer (2013) argues that perspective-taking will often backfire or result in less prosocial attitudes and behaviors when there is a high potential for evaluation. Potential for evaluation refers to when the person who is taking the perspective of another knows there is a chance that the other person will view their responses/attitudes regarding the other person or witness their behaviors. One of Vorauer’s primary arguments regarding perspective-taking effects is that when potential
for evaluation is high, people will often take a more egocentric focus. Having someone take the perspective of another person in a context where they may feel threatened by the interaction (i.e., high potential for evaluation) can lead to increased reactive egoism (Epley et al., 2006), and can also lead to increased focus on the attitudes another person has about the individual or their social groups (i.e., metaperceptions). This focus on evaluations from others can increase anxiety and lead to more negative outcomes (e.g., increased prejudice, decreased helping behaviors).

**Understanding Meta-stereotypes and Intergroup Interactions**

Meta-stereotypes are a specific type of metaperception and refer to perceptions one has about an outgroup’s stereotypes regarding the person’s ingroup (Best et al., 1977; Klein & Azzi, 2001; Sigelman & Tuch, 1997; Vorauer et al., 1998). For example, people often believe that outgroups will perceive themselves and other ingroup members negatively (e.g., Paolini et al., 2006; Vorauer et al., 1998; Sigelman & Tuch, 1997). Negative meta-stereotypes can be especially problematic in intergroup interactions when status inequality is present (Kamins, et al., 2009; Klein & Azzi, 2001; Sigelman & Tuch, 1997). Entering an intergroup interaction can already elicit distress, anxiety, and negative affect (Stephan et al., 1999, Stephan, 2014). Expectations that one will be viewed poorly because of their social groups (i.e., negative meta-perceptions) can increase these issues even more.

For members of advantaged social groups (e.g., White Americans), these negative meta-stereotypes may be damaging to intergroup interactions if they jeopardize the legitimacy of the advantages said social group has in society. Much of the research on meta-stereotypes between racial groups demonstrates that advantaged racial groups (e.g.,
White Americans) tend to believe that disadvantaged racial groups (e.g., Black/African Americans) hold negative perceptions of them based on their racial privilege (Babbitt et al., 2018; Klein & Azzi, 2001; Sigelman & Tuch, 1997; Vorauer et al., 2009). In the U.S., understanding how meta-stereotypes may impact relationships between White and Black populations is extremely important. Over 58% of Black American’s report experiencing discrimination in their lives (Lee et al., 2018) and Black/African populations are one of the most discriminated against racial minority groups worldwide (Quillian et al., 2019). Given that White people fear being viewed as immoral and unlikable in intergroup interactions (Bergsieker et al., 2010), White people may be more likely to avoid interactions with different racial groups when they believe those racial groups view White people in general as less likable or less moral (e.g., highly prejudiced). The tendency to avoid interactions with different racial minorities may also relate to the fact that White Americans believe Black American’s view them as racially prejudiced and bigoted (Babbitt et al., 2018). When advantaged groups that hold more societal power (e.g., White Americans) avoid interactions and conversations with disadvantaged groups (i.e., Black Americans), it may increase issues related to discrimination, prejudice, and the poor life outcomes that many minorities face.

Vorauer and colleagues’ (1998; 2000) research on meta-stereotypes indicated that meta-stereotypes can be activated during intergroup interaction. Specifically, they are activated in interactions where one expects to be evaluated by a member of an outgroup (e.g., after taking the perspective of an out-group member during an intergroup interaction). Expectations around evaluation (i.e., meta-stereotype activation) can, in turn, guide a given intergroup interaction, with increased negative evaluation expectations
resulting in less interest in interacting with out-group members and more prejudice towards said social group. This is extremely problematic when it comes to majority groups given that majority groups (e.g., White Americans, men) often hold a position of power in society and have potential ability to change social structures that may be harming minority groups (e.g., structural racism, systemic sexism; Brown & Ostrove, 2013; Spanierman & Smith, 2017).

In the context of intergroup relations, meta-stereotypes have important downstream consequences (Lammers et al., 2008) and can impact one’s negative attitudes towards an outgroup (Issmer et al., 2013; Paolini et al., 2006). Negative meta-stereotypes can also result in decreased well-being for stigmatized groups (e.g., elderly, racial minorities; Fasel et al., 2021; Kamans et al., 2009) and can hinder intergroup contact (Finchilescu, 2010). Negative meta-stereotypes are theorized to impact negative attitudes towards outgroups, given that negative meta-stereotypes statistically predict negative outgroup attitudes better than negative attitudes predict negative meta-stereotypes (Sigelman & Tuch, 1997; Vorauer & Sasaki, 2009). O’Brien and colleagues (2018) determined that participants from the U.S. who held more negative meta-stereotypes towards Iran (i.e., thought Iranians viewed the U.S. negatively) also reported more negative attitudes towards Iranians compared to people with more positive meta-stereotypes. Negative meta-stereotypes towards Iran also related to foreign policy support, with people who reported more negative meta-stereotypes also supporting more aggressive foreign policies towards Iran than those with more positive metaperceptions. This demonstrated that U.S. citizens believing that Iran views the U.S. negatively can
impact how they themselves view Iran and the type of policies they will support when it comes to U.S./Iran relationships.

As mentioned above, one potential process that may impact both intergroup interactions and meta-stereotypes is perspective-taking. Vorauer and Sasaki (2009) identified the role of perspective-taking in changing meta-stereotype activation and increasing prejudice reduction. In their study, they had White participants come into the lab and told them that they would be engaging in conversations about different media clips. Participants believed that they would either have a conversation with another White student or an Indigenous Canadian student. Next, participants watched a video clip of an Indigenous Canadian woman who was living in poverty. Participants were told to either take the perspective of the woman in the clip or to remain objective. After viewing the clip, participants were asked about their prejudice towards Indigenous Canadians.

When assessing for prejudice reduction among people who believed they would interact with an in-group member, perspective-taking had the typical positive results of greater prejudice reduction compared to those who remained objective. Interestingly, when assessing prejudice reduction among participants who believed they would be interacting with an out-group, the researcher found the opposite effect. Participants who remained objective after being told they would interact with an out-group member reported greater prejudice reduction than participants who took the perspective of the out-group. Vorauer and Sasaki (2009) also discovered that meta-stereotype activation was highest when people engaged in perspective-taking while anticipating interacting with an out-group member compared to when people engaged in perspective taking while anticipating interaction with an in-group member or when they were told to remain
objective. Finally, Vorauer and Sasaki (2009) conducted a mediated moderation analysis to demonstrate that the interaction effect of perspective-taking and exchange type on prejudice reduction was mediated by meta-stereotypes\(^2\).

The results of the Vorauer and Sasaki (2009) experiment suggest that other studies documenting the benefits of perspective-taking for intergroup relations may paint an overly optimistic picture because many of these studies have not been conducted in intergroup interaction contexts—the very contexts where it is most important to improve intergroup stereotypes, prejudices, and discriminatory behavior (e.g., Galinsky & Moskowitz, 2000; Shin et al., 2009; Simon et al., 2019; Todd & Molina, 2012). To my knowledge, the Vorauer and Sasaki (2009) study has yet to be replicated. Because this study has such important implications for the efficacy of perspective-taking as a means of improving intergroup relations in real world contexts, I believe a replication study is essential.

**Current Study and Replication Justification**

The proposed replication advanced the original study’s results in four ways. First, I replicated the original paper in a different intergroup context (White and Black Americans vs. White and Indigenous Canadians). There have been decades of research demonstrating that White Americans and Black Americans have both negative stereotypes and meta-stereotypes of each other (e.g., Babbitt et al., 2018; Finchilescu, 2005; Nosek et al., 2007; Sigelman & Tuch, 1997; Vorauer et al., 1998), but I could not find any published research examining how perspective-taking impacts these negative stereotypes.

\(^2\) In the original article, the authors referred to their analysis as a mediational analysis with their observational set and exchange type interaction term being the X variable, prejudice reduction being the Y variable, and meta-stereotype activation being the mediation variable. This is often referred to as mediated moderation in statistical textbooks and articles (Hayes, 2019; Muller et al., 2005).
meta-stereotypes. Given the current climate in the United States and the increased recognition around anti-black racism and the Black Lives Matter movements (Brown et al., 2019; Hendrickes et al., 2022), I felt that research focusing on perspective-taking in intergroup context was very timely. Specifically, it is important for psychologists to understand when perspective-taking can harm intergroup relations between White and Black Americans.

Second, I planned on replicating the study using a larger, more adequately powered sample as the original study would be considered under-powered by current standards (Button et al., 2013; Fields, 2013; Ledgerwood, 2018). In fact, larger sample sizes and better powered studies are more common and even expected in psychological studies now (Sassenberg & Ditrich, 2019). Using G*Power (Faul et al., 2007; Faul et al., 2009), I conducted a sensitivity power analysis based on the original study and determined that it was most likely underpowered. In fact, according to the sensitivity analysis, the study was powered for $\beta$s $> +/-.396$ and the main hypotheses I planned on testing all had original $\beta$s less than that ($\beta$s ranged from -.18 to -.25). I initially planned to conduct my replication study with 450 White American participants compared to 93 White Canadian participants in the original study. This larger sample size would be large enough to reliably detect a $\beta \geq .175$.

Next, I added a measure of meta-stereotype endorsement. Meta-stereotype endorsement refers to the extent to which White participants believe Black Americans stereotype White Americans. Much of the research on downstream consequences of meta-stereotypes (e.g., decreased well-being, hostile intergroup interactions, less support

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3 I was not able to collect my full 450 planned sample size during the 2023-2024 academic year.
for outgroups) has assessed meta-stereotype endorsement (e.g., Blascovich, et al., 2000; Fasel et al., 2021; Kamans et al., 2009; O’Brien et al., 2018) and not meta-stereotype activation, as was assessed in the Vorauer and Sasaki (2009) study. One study to use a similar paradigm to Vorauer and Sasaki (2009) and assess metaperceptions endorsement was Vorauer and colleagues’ (2009) research assessing perspective-taking’s impact on behavior in intergroup settings. Although they did determine that perspective-taking and metaperceptions do relate and can impact intergroup interactions, they did not assess meta-stereotypes. Instead, they assessed metaperceptions around desiring to interact with others.

Another series of studies arguing that metaperceptions may impact intergroup relations used a perspective-taking manipulation to determine that taking the perspective of an advantaged racial group resulted in disadvantaged racial groups viewing their racial group as less powerful and reporting being more cognitively depleted than those from disadvantaged groups who did not take an advantaged group’s perceptive (Vorauer & Quesnel, 2018). Overall, the research demonstrated that empathizing in intergroup contexts where there are power distances between different social groups can lead advantaged groups to benefit from the interaction but disadvantaged groups to be harmed by the interaction. Although the authors argue that their results match a meta-stereotype account for intergroup relations (i.e., their results suggest that taking the perspective of an outgroup results in people reflecting on how their own group is viewed by said outgroup), they do not directly measure negative meta-stereotype endorsement or activation. Therefore, it was important to include measures of both meta-stereotype activation and
endorsement in the current study to determine whether perspective-taking in intergroup contexts increases meta-stereotype endorsement in addition to meta-stereotype activation.

Finally, I conducted updated analysis using current statistical standards (Hayes, 2018). In the original paper, the authors conducted mediational analysis on their interaction terms between their two independent variables (often referred to as mediated moderation). Current statistical practices suggest moderated mediation is a better statistical method to test our predictions (see Analysis Plan Section and Figure 1 for more details).

I used similar procedures as Vorauer and Sasaki (2009) to manipulate observational set (perspective-taking vs remain objective) and exchange type (intergroup vs. intragroup). As in the original paper, I made the following predictions:

(1) Since meta-stereotypes activation should only occur when the potential for evaluation from an outgroup member is salient for a participant, I expected to see highest scores on the meta-stereotype activation measure for the intergroup/perspective-taking condition, compared to the two objective conditions or the intragroup/perspective-taking condition.

(2) Perspective-taking should lead to greater prejudice reduction for those who engage in perspective-taking outside of intergroup interaction (i.e., perspective-taking/intragroup) and those who remain objective in intergroup interaction (i.e., objective/intergroup) compared with those who engage in perspective-taking in the context of intergroup interaction (i.e., perspective-taking/intergroup) or those who remain objective in intragroup interaction (i.e., objective/intragroup). Given that past research has demonstrated that
intergroup contact can improve intergroup relations (Pettigrew & Tropp, 2012; Vorauer, 2013), participants who believe they are interacting with an outgroup member should experience prejudice reduction when they do not have the increased evaluative concerns that accompany perspective-taking in intergroup contexts (i.e., objective/intergroup). Also, past research has consistently demonstrated that perspective-taking can reduce prejudice (Baton, 2012; Pettigrew & Tropp, 2012; Vorauer & Sasaki, 2009). Therefore, participants who take the perspective of an outgroup member (without worrying about interacting with that individual (i.e., perspective-taking/intragroup)) should also report a reduction in prejudiced attitudes.

(3) In their original study, Vorauer and Sasaki (2009) hypothesized and found that meta-stereotypes mediated the relationship between the observational set/exchange type interaction term and prejudice reduction (i.e., they conducted mediated moderation, see Muller et al., 2005; Hayes, 2017). I predicted that the mediating role of meta-stereotypes on the relationship between observational set and prejudice reduction would differ based on exchange type manipulation (i.e., moderated mediation; see Figure 1). Specifically, the effect of perspective-taking on prejudice reduction would be mediated by meta-stereotype activation, but this effect would only be present when participants are told they would interact with an outgroup member (i.e., intergroup conditions). For the intragroup conditions, participants in the perspective-taking condition were not expected to experience increased meta-stereotype activation relative to the objective condition (since meta-
stereotypes are activated via perspective-taking in intergroup contexts).

Therefore, meta-stereotype activation would not mediate the relationship between perspective-taking and prejudice reduction for the intragroup conditions (See Figure 2).

**Methods**

The following methods and analysis plan were preregistered on the Open Science Framework (OSF) prior to conducting any analyses (https://osf.io/khfse/?view_only=5eb99cd8c83844333840d50853584d60f).

**Participants**

In their original study, Vorauer and Sasaki (2009) used a sample of 93 White Canadian participants that they recruited from a college population. In order to increase the power in the replication study, I originally planned to recruit 450 White American college students from a private, southern University. To determine this sample size, I used the effect size reported in Vorauer and Sasaki (2009) for the two-way interaction between observational set and exchange type ($\beta = -.19$) and ran the power analysis in G*Power with an $\alpha = .05$ and power set to .80 (Faul et al., 2009). Although I sought to recruit 450 participants, ultimately, I was only able to recruit 322 participants, or 71.6% of my goal. The average age of my participants was 18.60 (SD = 1.17) years old and my final sample was 74.2% women/25.8% men.

**Data Cleaning and Sample Size**

Data were collected for two semesters (Fall 2022 and Spring 2023). By the end of the Spring 2023 semester, a total of 322 participants were recruited. Based on my preregistration, I excluded participants for the following reasons: not consenting to data use,
issues while collecting data (e.g., fire alarm, computer issues), and high levels of suspicion during the scaffolded debriefing process. The final sample size used for the data analyses was 289 participants, which was approximately three times the sample size of the original Vorauer and Sasaki (2009) experiment.

Data cleaning procedures were pre-registered prior to data collection. Missing data on a single item was left untouched and mean scores were created by excluding any missing items from the mean composite score. For outliers on the lexical decision task items (i.e., reaction times), the individual word scores were trimmed so no reaction time was over two standard deviations from the mean. This protocol matched how the original authors handled outliers on the lexical decision task items. A mean composite score was then created across all meta-stereotype activation reaction times. For all other measures, outliers were handled by winzorising mean scores after composite scores were created.

**Sequential analysis.** Due to time constraints, the full sample size (450 participants) was not able to be collected. Therefore, alpha levels were adjusted using sequential analysis protocols (da Silva Frost & Ledgerwood, 2020; Lakens, 2014). Sequential analyses allow researchers to conduct their planned statistical analyses prior to their full sample size being collected. The rules for sequential analyses are to adjust one’s alpha level prior to their analyses to a smaller alpha level than the standard .05. If the results have a \( p \)-value above the new adjusted alpha value (i.e., non-significant), data collection continues until the pre-registered sample size is reached. If the results have a \( p \)-value below the new adjusted alpha value (i.e., significant results), data collection can stop. Specifically, an adjusted alpha value is calculated to help decrease type 1 error. For my sequential analysis cut-offs, a two-tailed alpha value based on 289 participants out of
the 450 planned participants (an interim ratio of .642) was calculated to be .0278. Therefore, results below were only reported as significant if the \( p \)-value is below .028. According to the logic of sequential analysis, if the results were not statistically significant, data collection should continue during the Fall 2023 semester.

**Measures**

There were three main dependent variables. The two dependent measures directly from Vorauer and Sasaki (2009) included the prejudice reduction and meta-stereotype activation (via the lexical decision task from Vorauer et al., 2000) measures. Additional measures that were included as covariates in the original study were collected via a prescreening survey. These variables included a measure of public collective self-esteem (Luhtanen & Crocker, 1992), a measure of private collective self-esteem (Luhtanen & Crocker, 1992), and participant gender.

In addition to the measures directly taken from Vorauer and Sasaki (2009), I included a measure of meta-stereotype endorsement (Babbitt et al., 2018). I also collected exploratory measures based on the original article. These measures include participants’ reaction to the documentary (i.e., manipulation check), participant’s own desire for future interaction, and perception of partner’s desire for future interactions (Coyne, 1976; Vorauer & Sasaki, 2009).

**Manipulation Checks**

**Observation Set.** This measure was taken from Vorauer and Sasaki (2009) and included eight items assessing people’s impressions of the woman in the documentary and their emotions towards the women in the video (e.g., “To what extent did you feel

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4 In the original study, this measure was referred to as the “Reaction to Documentary” measure. For my dissertation, I will refer to it as a manipulation check.
sympathetic towards the woman in the video”). These items were measured using a 7-point Likert scale (Not at all to Very Much). (α=.73)

**Exchange Type Manipulation Check.** This measure was created by the author and added to the study to assess how similar participants viewed their discussion partner to the woman in the video. The question was worded “How similar is your discussion partner to the woman in the video?” and was measured using a 7-point Likert scale (Not at all to Very Much).

**Main Dependent Variables**

**Lexical Decision Task (Meta-Stereotype Activation).** For meta-stereotype activation, the lexical decision task was used and was based on procedures from Vorauer and Sasaki (2009) and Vorauer et al. (2000). Participants were asked to categorize strings of letters as English words as fast as possible using a computer lexical decision task program on PsyToolKit (Stoet 2010; 2017). Participants were shown a string of letters and clicked “A” for yes or “L” for no to indicate if the string of letters formed a real English word. A total of 72 strings of letters were presented to participants, with 36 of them being English words. Out of those 36 words, 9 of them were meta-stereotype focused words (e.g., cruel, prejudice). To keep consistent with the original paper, I also included 9 other-stereotype words (e.g., dangerous, aggressive), 9 irrelevant negative words (e.g., childish, anxious), and 9 positive filler words (e.g., scenic, glittering).⁵ The words for the lexical decision task were determined via pilot testing using expert raters and committee member feedback. I created a composite mean score of the reaction times

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⁵ Additional analyses were conducted on the other-stereotype, irrelevant negative, and the positive filler lexical decision task subscales. Those results can be found in the Supplementary materials.
from each meta-stereotype item to assess meta-stereotype activation. Faster reaction times were indicative of greater meta-stereotype activation.

**Meta-Stereotype Endorsement.** This measure of explicit meta-stereotypes was adapted from Babbitt and colleagues (2018) and assessed the prejudice stereotypes White participants believe Black Americans have towards White Americans. Instructions for the scale asked “How well do the following traits describe what a Black person might expect White people to be like?” The 8 items (unfair, close-minded, unfeeling, insensitive, prejudiced against Blacks, biased, self-centered, ignorant) were assessed on a 7-point Likert scale (Not at All to Perfectly Describes). \( \alpha=.91 \)

**Prejudice Reduction.** The Modern Racism Scale (McConahay et al., 1981) was used as the prejudice reduction measure. I collected this measure twice, first during a prescreening survey that participants completed prior to the study and again during the study session itself. Following Vorauer and Sasaki (2009), I created a difference score on each item to determine how much a participant’s prejudice attitudes changed (Experiment Item Score – Pre-Screening Item Score) and then created a mean composite score of the differences per item. Larger scores indicated greater reduction in prejudice attitudes from prescreening to time of experiment. This measure included 7 items (e.g., “Over the past few years, the government and news media have shown more respect to blacks than they deserve.”) on a 5-point Likert scale (Strongly Disagree to Strongly Agree). \( \alpha=.71 \)

**Covariate Measures**

Additional measures that were included as covariates in the original study were also collected during prescreening.
**Public Collective Self-Esteem.** This measure was taken from Luhtanen and Crocker’s (1992) Collective Self-Esteem measure. This scale included four items assessing how people believe their racial social group (i.e., White/European American identity) is viewed by society (e.g. “In general, others respect the racial group I am a member of”). Higher scores were indicative of more positive beliefs regarding how society sees one’s racial social group. These items were measured using a 7-point Likert scale (Strongly Disagree to Strongly Agree). \( (\alpha = .76) \)

**Private Collective Self-Esteem.** This measure was taken from Luhtanen and Crocker’s (1992) Collective Self-Esteem measure. This scale included four items assessing how people view themselves as a member of their racial social group (e.g. “In general, I’m glad to be a member of the racial group I belong to”). Higher scores were indicative of more positive beliefs regarding how one sees themselves as a member of one’s racial social group. These items were measured using a 7-point Likert scale (Strongly Disagree to Strongly Agree). \( (\alpha = .81) \)

**Exploratory Measures**

**Own Desire to Interact.** This measure was taken from Vorauer and Sasaki (2009) and was based on Coyne (1976). The measure included six items assessing people’s desire to interact with their partner in the future (e.g., “To what extent would you like to meet your partner?”, “To what extent would you ask your partner for advice?”). Higher scores were indicative of greater desire to interact with one’s partner in the future. These items were measured using a 7-point Likert scale (Not at All to Very Much). \( (\alpha = .90) \)
**Partner’s Desire to Interact.** The measure was similar to the Own Desire to Interaction measure but instead focused on how participants thought their interaction partner would feel. The measure included six items (e.g., “To what extent do you think your partner would like to meet you?”; “To what extent do you think your partner would ask you for advice?”). Higher scores were indicative of great belief that one’s interaction partner wanted to interact with them in the future. These items were measured using a 7-point Likert scale (Not at All to Very Much). (α=.88)

**Additional Exploratory Measures.** Three additional questions were asked to assess people’s perceptions of both the woman in the video and the participants’ discussion partner. First, participants were asked how similar to Tulane students they thought their discussion partner was on a 7-point Likert scale (Not at All to Very Much). Next, participants were asked to what extent they believed the circumstances of the woman in the video was due to her race and due to her socioeconomic status. Both questions were assessed on a 7-point Likert scale (Not at All to Very Much).

Additionally, to help increase the similarities between the discussion partner and the woman in the video in the intergroup condition, participants were told that the other student was from New Orleans and a POSSE scholar (i.e., a student who is attending Tulane University as part of a multicultural scholarship program aimed at recruiting students from diverse backgrounds). Participants were asked if they had heard of the POSSE program before. Only 11.15% reported knowing about the POSSE program.

**Procedures**

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6 The results for the additional measures can be found in the Supplementary materials.
The study was approved by the author’s institutional review board before data collection. Participants were recruited three separate ways: by recruiting psychology students for course credit who had previously completed the Psychology department pre-screening study, by recruiting psychology students for course credit who had not previously completed the pre-screening study, and by recruiting via flyers and email listservs for payment ($10 via Venmo or Amazon). Regardless of recruitment method, all participants first completed the prejudice measure (pre-study prejudice attitudes), the public and private collective self-esteem measures, and their demographic information as part of a pre-study survey prior to participating in the laboratory portion of the study. Only White American students qualified for the study.

As in the original study, after arriving to the lab and providing consent, participants were informed by the experimenter that the researchers were interested in how people react to media portrayals of current social issues. Next, they were randomly assigned to one of four conditions based on the 2 (observational set) × 2 (interaction set) design. They were then told that they would be paired with another student of the same (White American; intragroup manipulation) or different (Black American; intergroup manipulation) race and would discuss their responses to a video later in the study. Participants were then asked to share their personal information (e.g., age, sex, ethnicity, personal interest) with their partner via a short essay packet. After filling out their packet, the participant received their “partner’s” responses to the questionnaire, which indicated their partner’s race (either White or Black American).
Next, participants viewed a 6-minute clip from a documentary focusing on a Black/African American woman who was living in poverty\(^7\). The clip detailed her day-to-day living situation and provided information about her life. Participants in the perspective-taking condition were told prior to viewing the video, “While you are viewing the documentary segment, try to imagine how the woman being interview feels about what has happened and how it has affected her life. Try to feel the full impact of what the woman has been through and how she feels as a result.” whereas participants in the objective condition were told, “While you are viewing the documentary segment, try to take an objective perspective toward what is described. Try not to get caught up in how the woman being interviewed feels; just remain objective and detached.” After viewing the video, participants completed the second personal information sheet to exchange with their partner. This sheet included a closeness-inducing procedure (e.g., “If you could change anything about the way you were raised, what would it be? Why?”; Aron et al., 1997).

Next, participants’ meta-stereotype activation was measured with a lexical decision task on a desktop computer (Vorauer et al., 2000). Once done with that task, participants completed all of the other dependent variable measures. Finally, participants were thoroughly debriefed by research assistants to assess for suspicion. Once completed, they were thanked, compensated appropriately, and were free to leave. The study took about an hour to complete.

**Experimental Manipulations**

\(^7\)The video can be found at https://www.youtube.com/watch?v=-SCB1t28nDU
The manipulations for the two independent variables (exchange type [intergroup/intragroup] and observation set [perspective-takin/remain objective]) were changed slightly from the original study, due to the change from White Canadian college students to White American college students. First, the video participants viewed was different. In the original study, participants watched a video focused on poverty among Indigenous Canadians. In the present study, participants watched a video focused on poverty among Black/African Americans. The observation set instructions remained the same, with participants being asked to either taking the perspective of the woman in the video or being told to remain objective.

Second, the information about the interaction partner changed a bit from the original study. In the intergroup condition, participants received information indicating that their interaction partner is a Black/African American student instead of an Indigenous Canadian student. All other personal information materials participants exchanged with the (fictious) partner remained the same. Participants completed two information sheets asking them about their age, race, and gender, as well as a closeness-inducing questionnaire (Aron et al., 1997) and filler questions about student interests. Participants believed these information sheets were being exchanged with another participant in a different room.

**Results**

Following the procedures of Vorauer and Sasaki (2009), the same multiple regression procedures were conducted for the manipulation checks, the main dependent variables, and the exploratory variables. Effects codes for both exchange type (Black partner [-1] vs White partner [1]) and observational set (remain objective [-1] vs
perspective-taking [1]) were entered at step 1, along with the pre-study prejudice measure and public collective self-esteem measure. The two-way interactions between exchange type and observational set were entered at step 2 along with the two-way interactions between the individual difference variables and the manipulated variables. Finally, the three-way interaction between pre-study prejudice and the two manipulated independent variables and the three-way interaction between public collective self-esteem and the two manipulated independent variables were entered on step 3. See Table 1 and 2 for descriptives on all measures included in the study and Table 3 for correlations between measures.

For the meta-stereotype activation and endorsement measures, I followed up the initial regression by creating a contrast vector to compare the perspective-taking/intergroup condition to the other three conditions. I entered the contrast vector, public collective self-esteem, and the pre-study prejudice measure all on the same step of the regression. As for the prejudice reduction measure, I followed up the initial regression by creating a contrast vector comparing the perspective-taking/intergroup and remain objective/intragroup conditions to the perspective-taking/intragroup and remain objective/intergroup conditions. Again, I entered the contrast vector, public collective self-esteem, and the pre-study prejudice measure all on the same step of the regression.

**Observation Set Manipulation Check**

The regression analysis for the manipulation check yielded a main effect of observational set; participants reported more empathy for the women in the video when

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8 Vorauer and Sasaki (2009, p. 194) reported that, “Private collective self-esteem, sex, and order of the sections in the final questionnaire were included as covariates when they had significant or marginal effects.” Accordingly, I conducted a second set of analyses that include private collective self-esteem, sex, and order. Significant results did not differ.
they were in the perspective-taking conditions ($M = 5.25, SD = 0.81$) compared to the remain objective conditions ($M = 4.88, SD = 0.94$), $\beta = .221$, $t(252) = 3.66$, $p < .001$. There were no main effects for exchange type; participants in the intergroup conditions ($M = 5.21, SD = 0.87$) did not report more empathy for the woman in the video than participants in the intragroup conditions ($M = 4.94, SD = 0.90$), $\beta = -.126$, $t(252) = -2.09$, $p = .038$. Finally, there was a main effect of pre-study prejudice score on the empathy measure; participants who had higher pre-study prejudice scores reported lower empathy for the woman in the video than participants with lower prejudice scores, $\beta = -.187$, $t(252) = -3.10$, $p = .002$. No other main effects or interaction terms were significant, $p$’s > .104. See Table 4 for conditional means and Table 5 for regression results.

**Exchange Type Manipulation Check**

The regression analysis for the manipulation check yielded a main effect of exchange type; participants reported their discussion partner was more similar to the women in the video for the intergroup conditions ($M = 3.64, SD = 1.29$) compared to the intragroup conditions ($M = 2.47, SD = 1.32$), $\beta = -.418$, $t(252) = -7.28$, $p < .001$. There was no main effect for observation set; participants in the perspective-taking conditions ($M = 3.01, SD = 1.50$) did not report their discussion partner was more similar to the woman in the video than participants in the remain objective conditions ($M = 3.00, SD = 1.35$), $\beta = .019$, $t(252) = -0.34$, $p = .738$. There was an interaction effect between public collective self-esteem and observation set, $\beta = -.187$, $t(252) = -3.10$, $p = .002$. Specifically, for those in the perspective-taking conditions, participants with higher public self-esteem viewed their discussion partner as less similar to the woman in the video compared to participants with lower public self-esteem, $\beta = -.217$, $t(128) = -2.51$, $p$
=.013. There was no such effect for people in the remain objective conditions, \( \beta = .035, \), \( t(120) = 0.38, p = .701. \) No other main effects or interaction terms were significant, \( p \)'s > .049. See Table 6 for conditional means and Table 5 for regression results.

**Prejudice Reduction**

The regression analysis for the prejudice reduction measure did not yield a main effect of observational set; participants did not report greater prejudice reduction in the perspective-taking conditions \( (M = -0.22, SD = 0.41) \) compared to the remain objective conditions \( (M = -0.20, SD = 0.36) \), \( \beta = -.023, t(250) = -0.44, p = .661. \) There were also no main effects for exchange type; participants in the intergroup conditions \( (M = -0.24, SD = 0.39) \) did not report greater prejudice reduction than participants in the intragroup conditions \( (M = -0.18, SD = 0.38) \), \( \beta = .082, t(250) = 1.59, p = .113. \) There was a significant main effect of pre-study prejudice scores on prejudice reduction; participants with greater pre-study prejudice scores reported less prejudice reduction than participants with lesser pre-study prejudice scores, \( \beta = -.582, t(250) = -11.28, p < .001. \) Finally, there was no significant interaction between exchange type and observational set, \( \beta = -.042, t(250) = 0.80, p = .422, \) or any other main effect/interactions in the model \( (p \)'s > .098). See Table 7 for conditional means and Table 8 for regression results.

The initial regression was followed up by the planned contrast regression comparing the perspective-taking/intragroup and objective/intergroup conditions with the perspective-taking/intergroup and objective/intragroup conditions. The 2 versus 2 contrast vector was entered at Step 1 along with the Public Collective Self-Esteem measure and the pre-study prejudice measure. There was a significant effect of pre-study prejudice measure on the prejudice reduction score, \( \beta = -.581, t(250) = -11.23, p < .001. \).
Specifically, those with greater scores on the pre-study prejudice measure reported less prejudice reduction than those with lesser scores on the pre-study prejudice measure. There was not a significant effect for the contrast; those in the perspective-taking/intragroup and objective/intergroup conditions did not report greater prejudice reduction than the perspective-taking/intergroup and objective/intragroup conditions, $\beta = -0.048$, $t(250) = 0.93$, $p = .353$. There was no significant effect of Public Collective Self-Esteem ($p = .767$).

**Meta-Stereotype Activation**

The regression analysis for the meta-stereotype activation measure did not yield a main effect of observational set; participants did not report more meta-stereotype activation in the perspective-taking conditions ($M = 704.25$ ms, $SD = 113.60$ ms) compared to the remain objective conditions ($M = 709.10$ ms, $SD = 128.48$ ms), $\beta = -.012$, $t(252) = -0.19$, $p = .852$. There were also no main effects for exchange type; participants in the intergroup conditions ($M = 710.65$ ms, $SD = 126.24$ ms) did not report more meta-stereotype endorsement than participants in the intragroup conditions ($M = 701.99$ ms, $SD = 114.98$ ms), $\beta = .106$, $t(252) = 1.68$, $p = .095$. Finally, there was no significant interaction between exchange type and observational set, $\beta = -.035$, $t(252) = -0.55$, $p = .581$, or any other main effect/interactions in the model ($p$’s $> .154$). See Table 9 for conditional means and Table 8 for regression results.

The initial regression was followed up by the planned contrast regression comparing the perspective-taking/intergroup condition with the perspective-taking/intragroup, objective/intergroup, and objective/intragroup conditions. The 3 versus 1 contrast vector was entered at Step 1 along with the Public Collective Self-Esteem
measure and the pre-study prejudice measure. There was not a significant effect for the contrast; those in the perspective-taking/intergroup conditions did not report greater meta-stereotype activation than the other three conditions, $\beta = -.052, t(250) = -0.82, p = .414$. No other effects were significant ($p$’s > .501).

**Meta-Stereotype Endorsement**

The regression analysis for the meta-stereotype endorsement measure did not yield a main effect of observational set; participants did not report more meta-stereotype endorsement in the perspective-taking conditions ($M = 4.31, SD = 1.03$) compared to the remain objective conditions ($M = 4.38, SD = 1.13$), $\beta = -.054, t(252) = -0.84, p = .399$. There were also no main effects for exchange type; participants in the intergroup conditions ($M = 4.32, SD = 1.14$) did not report more meta-stereotype endorsement than participants in the intragroup conditions ($M = 4.36, SD = 1.03$), $\beta = .013, t(252) = 0.20, p = .843$. Finally, there was no significant interaction between exchange type and observational set, $\beta = -.009, t(252) = -0.15, p = .885$, or any other main effect/interactions in the model ($p$’s > .113). See Table 10 for conditional means and Table 8 for regression results.

The initial regression was followed up by the planned contrast regression comparing the perspective-taking/intergroup condition with the perspective-taking/intragroup, objective/intergroup, and objective/intragroup conditions. The 3 versus 1 contrast vector was entered at Step 1 along with the Public Collective Self-Esteem measure and the pre-study prejudice measure. There was not a significant effect for the contrast; those in the perspective-taking/intergroup condition did not report greater meta-
stereotype endorsement than the other three conditions, $\beta = -.037$, $t(250) = -0.59$, $p = .562$. No other effects were significant ($p$’s $> .284$).

**Moderated Mediation Analyses for Meta-Stereotype Activation**

A moderated mediation analysis was conducted with the observation set manipulation entered as the X variable, meta-stereotype activation entered as the mediating variable, the exchange type manipulation entered as the moderating variable, and the prejudice reduction measure entered as the outcome variable. The results are illustrated in Figure 3 and Table 1. The overall moderated mediation model was not significant based on the index of moderated mediation of 0.002 ($SE = 0.005$) and a 95% bootstrap confidence interval of between -0.006 and 0.014. In other words, the indirect effect of observation set on prejudice reduction via meta-stereotype activation is not significant and does not differ based on exchange type (Hayes, 2015). Furthermore, the indirect effect of observation set on meta-stereotype activation was not significant for those in the intergroup condition (effect = -0.03, $SE = 0.04$, 95% CI = -0.10; 0.04) or for those in the intragroup condition (effect = 0.01, $SE = 0.03$, 95% CI = -0.06; 0.07).

**Moderated Mediation Analyses for Meta-Stereotype Endorsement**

A moderated mediation analysis was conducted with the observation set manipulation entered as the X variable, meta-stereotype endorsement entered as the mediating variable, the exchange type manipulation entered as the moderating variable, and the prejudice reduction measure entered as the outcome variable. The results are illustrated in Figure 4 and Table 1. The overall moderated mediation model was not significant based on the index of moderated mediation of 0.0001 ($SE = 0.003$) and a 95% bootstrap confidence interval of between -0.008 and 0.007. In other words, the indirect
effect of observation set on prejudice reduction via meta-stereotype endorsement is not significant and does not differ based on exchange type (Hayes, 2015). Furthermore, the indirect effect of observation set on meta-stereotype endorsement was not significant for those in the intergroup condition (effect = -0.001, SE = 0.003, 95% CI = -0.01; 0.01) or for those in the intragroup condition (effect = 0.001, SE = 0.003, 95% CI = -0.01; 0.005).

**Own Desire for Future Interaction**

The regression analysis for the own desire for future interaction measure yielded a main effect of exchange type; participants in the intergroup conditions reported greater desire to interact with their discussion partner ($M = 5.15$, $SD = 1.09$) compared to the intragroup conditions ($M = 4.36$, $SD = 1.09$), $\beta = -.330$, $t(252) = -5.55$, $p < .001$. There were no other significant main effect/interactions in the model ($p$’s > .06). See Table 12 for conditional means and Table 5 for regression results.

**Perception of Partner’s Desire for Future Interactions**

The regression analysis for the partner’s desire for future interaction measure yielded a main effect of exchange type; participants in the intergroup conditions reported believing their partner had greater desire to interact with them ($M = 4.19$, $SD = 0.95$) compared to the intragroup conditions ($M = 3.82$, $SD = 0.94$), $\beta = -.153$, $t(252) = -2.43$, $p = .016$. There were no other significant main effect/interactions in the model ($p$’s > .162). See Table 13 for conditional means and Table 5 for regression results.

**Discussion**

The goal of the current study was to replicate Vorauer and Sasaki (2009) research examining the effect of perspective-taking and intergroup interaction on prejudice reduction and meta-stereotypes. The current study advanced the original study in four
main ways: I assessed a different sample (American vs Canadian), I utilized a larger sample \((N = 289 \text{ vs } N = 93)\), I added a measure of meta-stereotype endorsement to assess both activation and endorsement of meta-stereotypes, and I conducted updated analyses to examine the moderating effect of intergroup interactions on the relationship between perspective-taking and meta-stereotypes. Overall, the predicted effects of perspective-taking and intergroup interactions on prejudice reduction and meta-stereotype activation/endorsement were not supported.

Those in the intergroup/perspective-taking condition were predicted to have higher scores on the meta-stereotype activation and endorsement measures compared to the two objective conditions or the intragroup/perspective-taking condition. There were no significant differences between the conditions on either measure (H1 not supported). Perspective-taking was predicted to lead to greater prejudice reduction for those in the perspective-taking/intragroup and the objective/intergroup conditions compared with those in the perspective-taking/intergroup or the objective/intragroup conditions. There were no significant results for the prejudice reduction measure (H2 not supported).

Finally, there was a predicted mediating role of meta-stereotypes on the relationship between observational set and prejudice reduction and the effect would differ based on exchange type manipulation (i.e., moderated mediation). The moderated mediation analyses were not significant. Specifically, the effect of perspective-taking on prejudice reduction was not significantly mediated by meta-stereotype activation regardless of the exchange type condition (H3 not supported).

There are a few potential reasons why I did not find the predicted results. One big reason may be that the current study sample is much smaller than the planned sample
size. Given that one of the main reasons for the replication was to conduct a more highly powered study than the original, the potential for an underpowered study is important to address. The issue of being underpowered is especially important given the amount of power required for more complex models (i.e., moderated mediation; Faul et al., 2007; Faul et al., 2009; Laken, 2022). In fact, I conducted a sensitivity analysis using G*Power and determined that the current study is only powered to detect a $\beta = +/- .245$. Given that the original effects were mostly smaller than this (-.18 to -.25), my smaller than planned sample size is a major limitation to the current study and may be why I did not find my predicted results.

Another reason for the null results may relate to the sample of liberal college students, specifically when it comes to the perspective-taking manipulation. Past research has demonstrated that liberals tend to report less prejudice than conservatives and also tend to report naturally taking the perspective of racial outgroups more than conservatives (Sparkman & Eidelman, 2016). Although there were differences in the manipulation check between the perspective-taking and remain objective conditions, it is important to note that both averages were above the mid-point, suggesting that both groups did feel empathy towards the woman in the video and may naturally take the perspective of others quite often in their day-to-day lives. If the sample in the current study had high tendencies to take the perspective of outgroup members, then the effect of the observation set manipulation on prejudice reduction and meta-stereotypes may not have been as large as it would have been in less liberal samples and could have resulted in null findings in the current study. Given the underpowered study, this smaller effect size of meta-
stereotype measures and the prejudice reduction measure could be even more problematic in the current study.

Although the predicted effects of exchange type and observation set on prejudice reduction and meta-stereotypes were not significant, there were important results to address. To start with, the manipulation checks for both the exchange type manipulation and the observation set manipulations were significant. Participants who were told they were interacting with a Black student viewed the student as more similar to the woman in the video than participants who were told they were interacting with a White student. Furthermore, students who were told to take the perspective of the woman in the video reported greater empathy towards the woman than participants who were told to remain objective. These findings suggest that the manipulations in the study were successful.

If the manipulation of both observation set and exchange type were effective, then the current null findings do suggest that the predictions in the current study may be wrong. This study suggests that the reactive effect of intergroup interactions may not be as robust as past research has demonstrated (Epley et al., 2006; Vorauer & Sasaki, 2009). Specifically, perspective-taking in intergroup contexts may not activate meta-stereotypes; therefore, perspective-taking may not lead to prejudice reduction in either intergroup or intragroup contexts. Although this may contradict some past research on perspective-taking (Batson & Ahmad, 2009; Galinsky et al., 2008; Vorauer & Sasaki, 2009), these findings are somewhat consistent with resent research suggesting perspective-taking may not be as effective as previously in certain situations (Skorinko & Sinclair, 2013; Todd et al., 2012; Wang et al., 2018). This lack of negative effects of perspective-taking may mean that the resources companies and organizations put into empathy-based diversity
training will not yield the desired results. Researchers and organizers should continue to study prejudice reduction methods to better understand how and why methods such as perspective-taking may not always change attitudes.

The null findings may also relate to the potential issue of using perspective-taking of a single individual as a method to change attitudes towards a social group as a whole. Although the method of using perspective-taking in this way is common (e.g., Batson et al., 1997; Galinsky et al., 2005; Pettigrew & Tropp, 2008; Sassenrath et al., 2016; Vorauer, 2013), this study suggests that this method may not always work. In fact, Batson and colleagues (1997) suggested that taking the perspective of a single individual may only improve attitudes towards their social group in some situations, but not all situations. They argue that having a person take the perspective of a target group member will only lead to generalized attitude change towards said group if the person who is perspective-taking views the hardship the target is facing as related to their social identity. In the current study, this argument would suggest that a White participant taking the perspective of the Black woman facing issues around poverty would only impact the White participant’s attitudes towards Black people as a whole if they believed that the issues the Black woman faced in the video was related to her race. Perspective-taking effects would not be generalized to Black people as a group in this situation if the White participant did not view the Black woman’s struggle with poverty as related to her race. Research understanding how people view the role of marginalized identities in one’s day-to-day life should be examined more as a potential factor impacting how effective perspective-taking of a single person is at changing generalized attitudes toward social groups.
There were also significant results related to the measures about future interactions (both for the participant and for the discussion partner). Participants in the intergroup conditions reported greater interest in interacting with their discussion partner and reported believing their discussion partner would be more interested in interacting with them than participants in the intragroup conditions. Although past research has suggested that White participants in similar situations report feeling less comfortable in intergroup interactions than intragroup interactions (Johnson et al., 2009; Vorauer & Sasaki, 2009), the results of this study may relate to the liberal sample and the content of the video being shown (i.e., poverty for racial minorities in America). The participants for the current study scored generally low on the prejudice reduction measure. Given the low prejudice scores and the demographics of the Tulane sample (i.e., White, liberal, educated, high SES), the participants in the study may have been interested in the prospect of discussing racism in American and understood that having the discussion around racism with a member of the marginalized group is important. Past research has suggested that White liberals are often educated around social movements and social justice topics and are more willing than conservative populations to learn about systemic issues in America (Dai et al., 2021; Salter, 2021; Zell & Lesick, 2022). These factors may have resulted in the participants believing that a discussion around racism with someone impacted by the issues (i.e., a Black student) would be more beneficial than with someone not as directly impacted by the issues (i.e., a White student). In fact, the findings in the current study are similar to some past research assessing White participants’ perceptions in interracial interactions (Dovidio et al., 2002; Johnson et al., 2009; Towles-Schwen & Fazio, 2003). In their study, Towles-Schwen & Fazio (2003) determined that
White participants report high levels of comfort interacting with a Black individual in context where the situation is highly controlled, and conversations are somewhat scripted. Participants in the current study may have been more comfortable interacting with the Black partner compared to the White partner because the situation they were in was a highly scripted and the topic of the discussion was highly controlled by the researchers.

**Limitations and Future Directions**

One limitation to the current study relates to the similarities between the woman in the video participants watched and the discussion partner. Although participants did report that the discussion partner in the intergroup condition was more similar to the woman in the video than the discussion partner in the intragroup conditions, the means were still below the mid-point. This suggests that participants may not have seen many similarities between the woman in the video and their Black discussion partner. This disconnect could have resulted in a lack of meta-stereotype activation, given that meta-stereotype activation tends to occur when evaluation from a specific outgroup is present (Vorauer, 2013). If participants in the intergroup viewed their discussion partner a member of a different social group than the woman in the video, the meta-stereotypes would not have been activated and there would be no mediating effect of meta-stereotypes on observation set and prejudice reduction. One way to address this limitation would be to increase participant’s perception of similarities between the woman in the video and the Black discussion partner. Future research should attempt to understand how similarities between a perspective-taking target and their social group as a whole impact perspective-taking processes.
Another limitation in the current study is the liberal sample. As mentioned above, there are potential confounds with a liberal sample. The confounds are especially an issue given the relationship between liberal ideology and racial prejudice (see Huddy & Feldman, 2009). Furthermore, although there tends to be a general norm in America to not appear prejudiced towards racial groups (Crandall et al., 2002), this norm is even more pronounced in liberal groups and can even encourage liberals to suppress prejudice attitudes (Webster et al., 2014). This social norm could make the study sample susceptible to social desirability related to suppressing prejudice attitudes which may have impacted the prejudice reduction measure. Future studies could address the issues mentioned in a few different ways. First, collecting a less liberal sample could help make the result more generalizable to America as a whole. Researchers could also assess social desirability and control for this variable in their study. Finally, researchers could use a more subtle measure of prejudice towards Black Americans. Although the Modern Racism Scale (McConahay, 1986) used in this study is meant to assess less overt racism in America, the items may be outdated and may not be seen as subtle in current American context (e.g., “Black people in America should not push themselves where they are not wanted.”).

A third limitation relates to the meta-stereotype activation measure and the items used in the Lexical Decision Task. The reaction times on the Lexical Decision Task for the meta-stereotype items in this study did not correlate with any of the other variables in the study. Despite the fact I did use items that have been used in the past and are well studied meta-stereotypes of White Americans (Babbitt et al., 2018), the items have not been validated in the context of the Lexical Decision Task and were ultimately created
for this study. In fact, the original study used completely different items given that they were assessing meta-stereotypes in a different social context (i.e., Canada). Given that the other measures used (e.g., Modern Racism Scale, McConahay, 1986) have all been validated in previous studies, the lack of correlations between measures may be related to the lack of previous validation in the meta-stereotype activation items. Although the validity of the meta-stereotype activation items is important to address, I will note that the previous validated measures also did not always correlate as predicted. Future studies should conduct validation steps for the meta-stereotype activation items and consider if the other validated scales used in the study are appropriate for the research questions being asked.

The meta-stereotype endorsement measure used in the current study also did not correlate with the prejudice reduction measure. The lack of correlations between the two measures is surprising given that both measures have been validated and used in past research (Babbitt et al., 2018; McConahay, 1986). Although the lack of correlation is not supported by past literature and may decrease the perception of validity in the current study, both of the measures do correlate with other variables and manipulations in the study (e.g., Collective Self-Esteem, observation set manipulation). These correlations suggest the lack of relationships between meta-stereotype endorsement and prejudice reduction may relate more to gaps in the theory than the methods in the study itself. Potentially, the relationship between meta-stereotyping and prejudice may be smaller than previously reported. Researchers need to continue to assess meta-stereotypes and prejudice in different populations/contexts to better understand the relationship between the two constructs. Given the complexity of meta-perceptions and meta-stereotypes,
future research should continue to examine when and how these meta-perceptions negatively impact interactions between social groups. Gaining a better understanding of how these perceptions are formed and how they inform other attitudes may help scientists create scalable interventions around meta-stereotype change.

**Implications and Conclusion**

One major implication for this study is the emphasis on replication studies in psychology. The current “replication crisis” in different scientific fields demonstrates that the current culture of science has resulted in questionable research practices and potentially ungeneralizable studies and theories (Maxwell et al., 2015; Open Science Collaboration, 2015; Simmons et al., 2011). One important step moving forward is to encourage and support replication studies and use replication studies that do not support the original study as a tool to improve theories and reevaluate original research. Although this replication study started as a way to expand to original research and had similar predictions to the original research, the null results suggest the effect of perspective-taking in intergroup context should continue to be examined. Perspective-taking as a concept has been applied to workplaces, DEI trainings, and school settings (e.g., Madera et al., 2011; Pendry et al., 2007; Ragin & Ehrhardt, 2021). Furthermore, perspective-taking in intergroup contexts has been applied to multiple theories (e.g., Intergroup Contact Theory, Empathy-Altruism Hypothesis; Batson, 2012; Batson et al., Pettigrew, 1998; Pettigrew & Tropp, 2006; 2008) and decades of psychological research (e.g., Epley et al., 2006; Galinsky et al., 2005; Sassenrath et al., 2016; Vorauer & Sasaki, 2009). Given the impact perspective-taking has had on psychology as a field, replication attempts of past perspective-taking studies is extremely important and should continue.
Another major implication to this study is the understanding that factors that impact some intergroup relations may not impact other intergroup relations. In the original study, Vorauer and Sasaki (2009) determined that the effect of perspective-taking differed depending on if people were interacting with a White Canadian or an Indigenous Canadian. Although theoretically, this effect should be generalizable to other intergroup interaction, the null results of this study suggests that applying the original methods to different racial groups (White/Black people) and a different society (United States) does not perfectly capture the original effects reported. Given that racial relationships in a society are often rooted in the society’s history, laws, and social norms (Nelson et al., 2013), psychologists need to create more scalable methods aimed at reducing prejudice and improving intergroup relations. For example, the stereotypes around Indigenous Canadians and Black Americans do differ. There are some similarities between the two marginalized groups (e.g., lazy, alcoholic), but Indigenous Canadians tend to also be stereotyped as juvenile and apathetic (Berry et al., 1977; Burns & Shor, 2021; Vorauer et al., 1998), whereas Black Americans tend to be viewed as aggressive and are often assumed to be older than they really are (McCauley, 1978; Peffley et al., 1997; Welch, 2007). These differences in stereotypes may result in perspective-taking not being as effective given that White American’s report viewing Black Americans as threatening (Hester & Gray, 2018) and the sense of threat may result in a person focusing on the threat itself more and then hinder the downstream effects of perspective-taking (i.e., prejudice reduction, meta-stereotype activation/endorsement).

Overall, the current study demonstrates that the research utilizing perspective-taking as a method to improve intergroup relations still needs to be expanded. Although
there is promising research demonstrating perspective-taking reducing prejudice attitudes and improving intergroup relations (Galinsky et al., 2008; Simon et al., 2019; Zebel et al., 2009), the current study does also demonstrate that these effects may not always occur. Furthermore, null results should not make psychologists complacent in regards to interventions aimed at decreasing prejudice. The current study may suggest null results, meaning perspective-taking interventions at worse do not impact attitudes, other research suggest these interventions can actually harm attempted to reduce prejudice (Vorauer & Sasaki, 2009). Given these mixed results, companies and organizations should be cautious when implementing understudied prejudice reduction interventions.


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Note. All measures were assessed using a 7-point Likert scale.
Table 2
*Descriptive Information for Lexical Decision Task Items*

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<th>Category</th>
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<td>Positive Filler-Activation</td>
<td>498.13</td>
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<td>761.86</td>
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Note. All Lexical Decision Task subscales are significantly different from each other at $p < .001$. 
## Table 3

**Correlations Between Variables**

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<td>.02</td>
<td>.03</td>
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<td>.05</td>
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<td>.71*</td>
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Note. * Correlation is significant at the 0.05 level (2-tailed).
Table 4
*Conditional Means for Observation Set Manipulation Check*

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<td>4.69 (0.94)</td>
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<tr>
<td>Intergroup Condition</td>
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<td>5.11 (0.89)</td>
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Note. Mean (Standard Deviation)
Table 5
Regression Analysis Results for Manipulation Checks and Exploratory Measures

<table>
<thead>
<tr>
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<th>Ob Manipulation Check</th>
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<th>Own Desire to Interact</th>
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<td>Constant</td>
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<td>Ob×ExM</td>
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Note. Ob = Observation Set Manipulation. Ex = Exchange Type Manipulation. Public = Public Self-Esteem Measure. MRS = Pre-Study Score on Modern Racism Scale. * Significant $R^2$ at less than .028.
### Table 6
*Conditional Means for Exchange Type Manipulation Check*

<table>
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<th>RO Condition</th>
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<tbody>
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Note. Mean (Standard Deviation)
Table 7
*Conditional Means for Prejudice Reduction Scores*

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<th>RO Condition</th>
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Note. Mean (Standard Deviation)
Table 8
Regression Analysis Results for Dependent Measures

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<tr>
<th></th>
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<th>Meta-Stereotype Activation</th>
<th>Meta-Stereotype Endorsement</th>
</tr>
</thead>
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<td>$B$</td>
<td>$P$</td>
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Note. Ob = Observation Set Manipulation. Ex = Exchange Type Manipulation. Public = Public Self-Esteem Measure. MRS = Pre-Study Score on Modern Racism Scale. * Significant R² at less than .028.
<table>
<thead>
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Note. Mean (Standard Deviation) in milliseconds (ms)
Table 10
*Conditional Means for Meta-Stereotype Endorsement*

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Note. Mean (Standard Deviation)
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<th>Table 11</th>
<th>Standardized and Unstandardized Coefficients for Moderated Mediation Models</th>
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<td>Observation Set Manipulation to Meta-Stereotypes (pathway a)</td>
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</tr>
<tr>
<td>Meta-Stereotypes to Prejudice Reduction (pathway b)</td>
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<tr>
<td>Observation Set Manipulation to Prejudice Reduction (pathway c (c'))</td>
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Table 12
*Conditional Means for Own Desire to Interact*

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Note. Mean (Standard Deviation)
Table 13  
*Conditional Means for Partner Desire to Interact*

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Note. Mean (Standard Deviation)
Figure 1
Statistical and Theoretical Model for Experiment

- Meta-Stereotypes
- Observational Set Manipulation
- Exchange Type Manipulation
- Prejudice Reduction
**Figure 2**
*Predicted Results Based on Exchange Type Condition*

**Intragroup Condition**

- Meta-Stereotypes
  - n.s.
  - Observational Set Manipulation
    - +
    - Prejudice Reduction

**Intergroup Condition**

- Meta-Stereotypes
  - +
  - Observational Set Manipulation
    - -
    - Prejudice Reduction
Figure 3
*Moderated Mediation Results for Meta-Stereotype Activation*

**Intragroup Condition**
- Meta-Stereotypes
  - Observational Set Manipulation: -7.00
  - Prejudice Reduction: 0.01 (0.002)
- Prejudice Reduction: -0.002

**Intergroup Condition**
- Meta-Stereotypes
  - Observational Set Manipulation: 5.40
  - Prejudice Reduction: -0.03 (-0.001)
- Prejudice Reduction: -0.003
Figure 4
Moderated Mediation Results for Meta-Stereotype Endorsement

**Intragroup Condition**

- Meta-Stereotypes: $-0.06$
- Observational Set Manipulation: $0.02$
- Prejudice Reduction: $0.01 (-0.001)$

**Intergroup Condition**

- Meta-Stereotypes: $-0.07$
- Observational Set Manipulation: $-0.001$
- Prejudice Reduction: $-0.03 (<.0001)$
Supplement Analyses

Additional Measures

The same multiple regression procedures were conducted for all additional measure items reported. Effects codes for both exchange type (Black partner [-1] vs White partner [1]) and observational set (remain objective [-1] vs perspective-taking [1]) were entered at step 1, along with the pre-study prejudice measure and public collective self-esteem measure. The two-way interactions between exchange type and observational set were entered at step 2 along with the two-way interactions between the individual difference variables and the manipulated variables. Finally, the three-way interaction between pre-study prejudice and the two manipulated independent variables and the three-way interaction between public collective self-esteem and the two manipulated independent variables were entered on step 3.

The regression analysis for the item assessing how similar participants believed their discussion partner was to the average Tulane student yielded a main effect of exchange set; participants reported that their discussion partner was more similar to the average Tulane student in the intragroup conditions ($M = 4.34$, $SD = 1.89$) compared to the intergroup conditions ($M = 3.22$, $SD = 1.42$), $\beta = .280$, $t(252) = 4.60$, $p < .001$. There were no other significant main effect/interactions in the model ($p$’s $>.107$). See Table S1 for conditional means.

The regression analysis for the question asking if the socioeconomic status of the woman in the video impacted her situation yielded a significant main effect of pre-study prejudice score; participants who had higher pre-study prejudice scores reported believing the woman’s socioeconomic status impacted her situation more than
participants with lower pre-study prejudice scores, $\beta = .192, t(252) = 3.11, p = .002$. There were no other significant main effect/interactions in the model ($p$’s $> .034$). See Table S2 for conditional means.

Finally, the regression analysis for the question asking if the race of the woman in the video impacted her situation yielded a significant three-way interaction between pre-study prejudice scores, the observation set manipulation, and the exchange type manipulation, $\beta = -.169, t(252) = -2.61, p = .010$. The 3-way interaction was followed up by simple two-way interactions between observation set and pre-study prejudice scores separately based on the exchange type condition. For those in the White partner condition, the two-way interaction for observation set and pre-study prejudice was not significant, $\beta = -.053, t(135) = 0.98, p = .329$. For those in the Black partner condition, the two-way interaction for observation set and pre-study prejudice was significant, $\beta = .273, t(113) = 2.96, p = .004$. The significant two-way interaction was followed-up with simple slopes. The effect of pre-study prejudice scores on participant’s beliefs regarding how much the woman in the video’s race impacted her situation was not significant for those in the perspective-taking condition, $\beta = .274, t(60) = 2.16, p = .035$, or the remain objective condition, $\beta = -.276, t(53) = -2.04, p = .046$ (see Figure S1). No other main effects or interaction effects were significant ($p$’s $> .093$). See Table S3 for conditional means.

**Lexical Decision Task Subscales**

The same multiple regression procedures were conducted for all Lexical Decision Task subscales reported. Effects codes for both exchange type (Black partner [-1] vs White partner [1]) and observational set (remain objective [-1] vs perspective-taking [1])
were entered at step 1, along with the pre-study prejudice measure and public collective self-esteem measure. The two-way interactions between exchange type and observational set were entered at step 2 along with the two-way interactions between the individual difference variables and the manipulated variables. Finally, the three-way interaction between pre-study prejudice and the two manipulated independent variables and the three-way interaction between public collective self-esteem and the two manipulated independent variables were entered on step 3.

**Other-Stereotype Items**

The regression analysis for the other-stereotype items on the lexical decision task yielded an interaction effect between pre-study prejudice and exchange type, $\beta = -.187$, $t(252) = -37.40, p = .004$. The interaction effect was followed up with simple slope effects. For those in the White partner conditions, pre-study prejudice scores did not impact other-stereotype item reaction times, $\beta = -.071$, $t(137) = -0.83, p = .407$. For those in the Black partner conditions, pre-study prejudice scores did impact other-stereotype item reaction times, $\beta = .298$, $t(115) = 3.30, p = .001$. Specifically, those with lower pre-study prejudice scores had greater other-stereotype activation than those with higher pre-study prejudice scores. Figure S2 for simple slopes. There were no other significant main effect/interactions in the model ($p$’s > .040). See Table S4 for conditional means.

**Negative Irrelevant Items**

The regression analysis for the negative irrelevant items on the lexical decision task did not yield and significant main effect/interactions in the model ($p$’s > .047). See Table S5 for conditional means.

**Positive Filler Items**
The regression analysis for the positive filler items on the lexical decision task yielded an interaction effect between pre-study prejudice and exchange type, $\beta = -0.160$, $t(252) = -2.49, p = .014$. The interaction effect was followed up with simple slope effects. For those in the White partner conditions, pre-study prejudice scores did not impact positive filler item reaction times, $\beta = -0.110$, $t(137) = -1.27, p = .206$. For those in the Black partner conditions, pre-study prejudice scores also did not impact positive filler item reaction times, but the relationship was in the opposite direction of the White partner conditions, $\beta = 0.201$, $t(251) = 2.19, p = .031$. See Figure S3 for simple slopes. There were no other significant main effect/interactions in the model ($p’s > .073$). See Table S6 for conditional means.

**Supplement Discussion**

Overall, these results suggest that participants’ pre-study prejudice scores did impact some of their responses in the study. First, participants with higher prejudice scores reported that the socioeconomic status of woman in the video was impacting her situation more than participants with lower prejudice scores. Participants’ prejudice scores also related to their perceptions of how the race of the woman in the video impacted her situation. Although it was not significant, the results do suggest that high prejudice scores positively relate to the belief that race was impacting the woman’s situation for participants taking the woman’s perspective, but only in an intergroup context. The effect was opposite when participants do not take the woman’s perspective (i.e., high prejudice negatively relates to the belief that race is impacting the woman when the participant was in an intergroup context).
Second, pre-study prejudice scores also related to participant’s reaction times on the Lexical Decision Task. For both the other-stereotypes and the positive filler subscales, the prejudice scores for participants in the intergroup conditions (not intragroup conditions) related to reaction times. Specifically, participants in the intergroup conditions with higher scores on the prejudice measure reported higher reaction times than participants with low scores. This suggest that participants with more prejudice had less other-stereotype activation and less positive activation than those with less prejudice. These effects were not present for the negative other subscale.

Finally, participants in the study did seem to view the Black discussion partner as less similar to the overall Tulane student body than the White discussion partner. Given the demographic make-up for Tulane University (i.e., majority White students), this is not surprising. Pre-study prejudice scores did not impact the measure.
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<thead>
<tr>
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Note. Mean (Standard Deviation)
Table S2
*Conditional Means for Impact of SES Item*

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<tr>
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Note. Mean (Standard Deviation)
Table S3

*Conditional Means for Impact of Race Item*

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Note. Mean (Standard Deviation)
### Table S4

*Conditional Means for Other-Stereotype Reaction Times*

<table>
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<td>652.53 (94.29)</td>
<td>649.38 (93.39)</td>
</tr>
</tbody>
</table>

Note. Mean (Standard Deviation) in milliseconds (ms)
Table S5
*Conditional Means for Negative Irrelevant Reaction Times*

<table>
<thead>
<tr>
<th>Condition</th>
<th>PT Condition</th>
<th>RO Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intragroup Condition</td>
<td>680.49 (110.18)</td>
<td>681.70 (109.65)</td>
</tr>
<tr>
<td>Intergroup Condition</td>
<td>672.10 (103.42)</td>
<td>661.66 (92.48)</td>
</tr>
</tbody>
</table>

Note. Mean (Standard Deviation) in milliseconds (ms)
Table S6  
*Conditional Means for Positive Filler Reaction Times*

<table>
<thead>
<tr>
<th>Condition</th>
<th>PT Condition</th>
<th>RO Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intragroup Condition</td>
<td>767.54 (127.20)</td>
<td>759.54 (129.50)</td>
</tr>
<tr>
<td>Intergroup Condition</td>
<td>749.24 (110.20)</td>
<td>771.17 (133.23)</td>
</tr>
</tbody>
</table>

Note. Mean (Standard Deviation) in milliseconds (ms)
Figure S1

*Three-Way Interaction between Observation Set, Exchange Type, and Pre-Study Prejudice*

![Graph showing interaction between observation set, exchange type, and pre-study prejudice.](image)

How much is the woman in the video’s race to blame for her current hardship?

White Condition

- Low Pre-Study Prejudice Score
- High Pre-Study Prejudice Score

Black Condition

- Low Pre-Study Prejudice Score
- High Pre-Study Prejudice Score

- Remain Objective
- Perspective-Taking
Figure S2
Two-Way Interaction between Pre-Study Prejudice and Exchange Type on Other-Stereotype Item Reaction Times During Lexical Decision Task
Figure S3
Two-Way Interaction between Pre-Study Prejudice and Exchange Type on Positive Filler Item Reaction Times During Lexical Decision Task

![Graph showing the interaction between pre-study prejudice score and reaction times for white and black fillers.](image-url)
Appendix A
Collective Self-Esteem Measure

We are all members of different social groups or social categories. We would like you to consider your race or ethnicity (e.g., African-American, Latino/Latina, Asian, European-American) in responding to the following statements. There are no right or wrong answers to any of these statements; we are interested in your honest reactions and opinions. Please read each statement carefully, and respond by using the following scale from 1 to 7:

1. I am a worthy member of my race/ethnic group.
2. I often regret that I belong to my racial/ethnic group.
3. Overall, my racial/ethnic group is considered good by others.
4. Overall, my race/ethnicity has very little to do with how I feel about myself.
5. I feel I don't have much to offer to my racial/ethnic group.
6. In general, I'm glad to be a member of my racial/ethnic group.
7. Most people consider my racial/ethnic group, on the average, to be more ineffective than other groups.
8. The racial/ethnic group I belong to is an important reflection of who I am.
9. I am a cooperative participant in the activities of my racial/ethnic group.
10. Overall, I often feel that my racial/ethnic group is not worthwhile.
11. In general, others respect my race/ethnicity.
12. My race/ethnicity is unimportant to my sense of what kind of a person I am.
13. I often feel I'm a useless member of my racial/ethnic group.
14. I feel good about the race/ethnicity I belong to.
15. In general, others think that my racial/ethnic group is unworthy.
16. In general, belonging to my race/ethnicity is an important part of my self image.
Appendix B
Prejudice Reduction Scale (Modern Racism Scale)

Using the scale provided, please indicate the extent to which you agree or disagree with each the following statements. The scale ranges from 1 (Strongly Disagree) to 5 (Strongly Agree)

1. Discrimination against Black people in America is no longer a problem in the United States.
2. It is easy to understand the anger of Black people in America.
3. Black people in America have more influence upon school desegregation plans than they ought to have.
4. Black people in America are getting too demanding in their push for equal rights.
5. Black people in America should not push themselves where they are not wanted.
6. Over the past few years, Black people in America have gotten more economically than they deserve.
7. Over the past few years, the government and news media have shown more respect to Black people in America than they deserve.
Appendix C
Personal Information Sheet #1
(Note: Your answers will be shared with the other participant in this session)

First Name: ____________________

Section One: Demographic Information

Sex (please circle one): Male Female

Age: _____

Ethnic Group: Please indicate how you would best describe your race or ethnicity by checking one of the general categories presented below.

___ White
___ Chinese
___ South Asian (e.g., East Indian, Pakistani, Punjabi)
___ Black
___ Native American/Indigenous American
___ Filipino
___ Other (please specify: __________________________)

Section Two: Personal Qualities

What personal qualities are important to how you see yourself?

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________

What do you consider to be your negative qualities?

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
Appendix D
Pre-prepared answers of the ostensible partner in the study
(These will be hand written and NOT typed out)

First Name: Susan/Eric

Section One: Demographic information

Sex (please circle one): Male   Female

Age: 19

Ethnic Group: Please indicate how you would best describe your race or ethnicity by checking one of the general categories presented below:

___ White
___ Chinese
___ South Asian (e.g., East Indian, Pakistani, Punjabi)
X___ Black
___ Native American/Indigenous American
___ Filipino
___ Other (please specify: ____________________________)

Section Two: Personal Qualities

What personal qualities are important to how you see yourself?

I think that I am pretty open-minded, and that I am good at “reading” people. I always try to have a good sense of humor, and to look on the bright side. I care about other people. My friends and family are important to me. I'm a hard-worker, but I also like to have fun.

What do you consider to be your negative qualities?

I often feel and act shy around others I don’t know well. I’ve been told that I am too sensitive. I'm a bit impatient. Sometimes I am a bit too impulsive and too carefree with money.
Appendix D

Personal Information Sheet #2
(Note: Your answers will be shared with the other participant in this session)

Please provide written answers to each of the following questions. You may answer the questions in as much or as little detail as you like, and you may directly refer to the other participant (e.g., his or her answers on the first personal information sheet) if that seems appropriate to you.

1. If you knew that in one year you would die suddenly, would you change anything about the way you are now living? Why?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

2. If you could change anything about the way you were raised, what would it be? Why?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
3. If a crystal ball could tell you the truth about yourself, your life, the future, or anything else, what would you want to know? Why?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

4. How close and warm is your family? Do you feel that your childhood was happier than most people's?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Appendix F
Perspective-Taking Manipulation Instructions

**Remain Objective Condition:** In this part of the study, you will watch a short clip from a documentary about living in America. While you are viewing the documentary segment, try to take an objective perspective toward what is described. **Try not to get caught up in how the single mother feels; just remain objective and detached.**

**Perspective-Taking Condition:** In this part of the study, you will watch a short clip from a documentary about living in America. While you are viewing the documentary segment, try to imagine how the single mother feels about what has happened and how it has affected her life. **Try to feel the full impact of what the single mother has been through and how she feels as a result.**
Appendix G
Lexical Decision Task Words

Meta-Stereotype Words
Biased
Prejudice
Ignorant
Self-Centered
Insensitive
Closed-Minded
Unfair
Arrogant
Egocentric

Other-Stereotype Words
Dangerous
Aggressive
Violent
Lazy
Threatening
Poor
Unintelligent
Criminal
Athletic

Irrelevant Negative Words
Nervous
Pessimistic
Immature
Childish
Anxious
Irresponsible
Dishonest
Careless
Rejecting

Filler Words
scenic
glittering
delicious
invigorating
exquisite
picturesque

festy
uplifting

Nonwords
trouargefger
stiptsevr
zoorphhab
gnedsedrt
smirlbsev
blodsedre
hoorcedvt
sfaulfzmn
charvedyq
snarbesvt
snoxtesaper
klayppsre
shrawtzve
trarmpetered
cklenkseta
wroorgetman
trarnksfe
klirpmpse
sphoadswbfir
yeansedca
durlbeson
wesckcert
voanedarf
prirlfs
gnoytflut
tyht
raintserfg
veyktsefg
virspzzzet
naydthrtqram
sklorts
kralv
cieglt
skowxteflal
faltce
fleamsre
Appendix H
Questionnaire Instructions

Your responses to this questionnaire will be completely confidential: They are coded by participant number rather than name, and the other participant in this session will never have access to your responses.
Appendix I
Reactions to the Documentary

The following items ask about your reactions to Joan, the First Nations woman featured in the documentary. Write the appropriate number in the blank next to each item, using the following scale:

1  2  3  4  5  6  7
Not at All Very Much

_____ 1. To what extent did you try to imagine how Joan felt as you viewed the documentary?
_____ 2. How much did you like Joan?
_____ 3. How much did you feel that you had things in common with Joan?

Now please indicate the extent to which you experienced the following emotional states while viewing the documentary segment. Write the appropriate number in the blank next to each item, using the following scale:

1  2  3  4  5  6  7
Not at All Extremely

_____ 1.  sympathetic  _____ 5.  apologetic  _____ 9.  moved
_____ 2.  angered  _____ 6.  alarmed  _____ 10.  bothered
_____ 3.  ashamed  _____ 7.  annoyed  _____ 11.  guilty
_____ 4.  compassionate  _____ 8.  warm-hearted  _____ 12.  tender

[bold = empathy]
Appendix J
Desire for Future Interaction (Self)

Please answer each of the questions below, which focus on your reactions to the other participant in this session, by writing the appropriate number in the blank beside the item. Use the following scale:

1  2  3  4  5  6  7
Not at All  Neutral  Very Much

1. Would you like to meet the other participant outside the experiment?
2. Would you ask the other participant for advice?
3. Would you consider sitting next to the other participant on a 3-hour bus trip?
4. Would you consider inviting the other participant to your house?
5. Would you be willing to work with the other participant on a job?
6. Would you consider admitting the other participant to your circle of friends?
Appendix K
Desire for Future Interaction (Partner)

The next questions ask about how you think that the other participant views you. In answering these questions, assume that the other participant has read your first, but not your second, personal information sheet. Please write the appropriate number in the blank beside the item. Use the following scale:

1  2  3  4  5  6  7
Not at All       Neutral       Very Much

___ 1. Would the other participant like to meet you outside the experiment?
___ 2. Would the other participant ask you for advice?
___ 3. Would the other participant consider sitting next to you on a 3-hour bus trip?
___ 4. Would the other participant consider inviting you to his/her house?
___ 5. Would the other participant be willing to work with you on a job?
___ 6. Would the other participant consider admitting you to his/her circle of friends?
Appendix L
Meta-Stereotypes Measure

How well do the following traits describe what a Black person might expect White people to be like? (On a scale of 1-7 from not at all to perfectly describe)

1. Prejudice items (unfair, close-minded, unfeeling, insensitive, prejudiced against Blacks, biased, self-centered, ignorant)
2. Advantage items (well-educated, privileged, and wealthy)
3. Warmth items (sociable, likeable, friendly, tolerant, warm, goodnatured, sincere, and caring)
4. Competence (competent, confident, independent, competitive, and intelligent)
5. Moral (trustworthy, moral, principled)
Appendix M
Additional Study Questions

Please answer the following questions on a scale of 1 to 7 (Not At All – Completely)

1. How similar is the woman in the video to your discussion partner?
2. How similar is your discussion partner to the typical Tulane student?
3. How much is the woman in the video’s race to blame for her current hardship?
4. How much is the woman in the video’s SES or income to blame for her current hardship?
5. Do you know what the POSSE Scholars program is? (Yes/No)
BIOGRAPHY

Danica Kulibert received their Ph.D. from Tulane University in 2023. Prior to Tulane, Danica received a Master’s of Science and a Bachelor’s of Science in Psychology from the University of Wisconsin Oshkosh. Danica’s research broadly focuses on: perceptions of prejudice and discrimination, factors impacting political attitudes and behaviors, and understanding interventions aimed at improving social group interactions. They are currently an Assistant Professor in the Psychological Science Department at Kennesaw State University in Georgia.