

Meta-analytic and empirical investigations into interracial interactions:
An intersectional, relational, and contextual approach

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Abstract

Intersectional, relational, and contextual elements were examined to develop a more comprehensive approach to understanding interracial interactions. First, I performed a meta-analysis of over 40 years of research on interracial interactions, using data from 108 samples ($N = 12,463$) featuring dyadic interracial and same-race interactions. Results indicated that participants in same-race dyads tended to express more positive attitudes about their partners ($r = .07$), reported feeling less negative affect ($r = .10$), showed more friendly nonverbal behavior ($r = .09$), and scored higher on objective performance measures ($r = .07$) than those in interracial dyads. Effect sizes showed substantial heterogeneity, and further analyses indicated several important moderating factors. For example, being part of a dyad that was both interracial and cross-sex exacerbated negative affect. Furthermore, effects of interaction structure on nonverbal behavior depended on participant gender, with women showing less bias in free-form interactions, and men showing less bias in structured interactions. Three studies were run to investigate further the effects of racial diversity on gender dynamics in small mixed-sex groups. In all-White groups, White men spoke significantly more than White women and were rated as more persuasive; however, in racially diverse groups, White women and White men spent equal amounts of time speaking and were rated as equally persuasive (Study 1). In diverse groups, White women showed increasing confidence over time, whereas White men showed decreasing confidence (Study 2). Study 3 examined gender differences in interaction concerns. These results all underscore the importance of taking an intersectional, relational, and contextual approach to understanding interracial interactions.

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Table of Contents

1. Introduction.....1

2. Part I: Meta-Analysis.....3

 a. Method.....17

 b. Results.....26

 c. Discussion.....43

3. Part II: Empirical Research.....52

 a. Study 155

 i. Method.....55

 ii. Results and Discussion.....56

 b. Study 2.....60

 i. Method.....61

 ii. Results and Discussion.....62

 c. Study 3.....64

 i. Method.....65

 ii. Results and Discussion.....66

 d. General Discussion.....69

4. Appendix: Table of meta-analytic samples.....73

5. References.....80

6. Supplemental References.....105

Meta-analytic and empirical investigations into interracial interactions:

An intersectional, relational, and contextual approach

Contemporary society grows more diverse by the day. Combined with the ease of modern travel and migration, these demographic shifts render interracial and interethnic encounters increasingly common for many people (UNESCO Institute for Statistics, 2009). But while explicit social norms have become more inclusive and egalitarian in recent years, the dynamics of interracial interactions remain complicated (Dovidio & Gaertner, 2000; Gaertner & Dovidio, 1986; McConahay, 1986; Sears, 1988; Sears, Henry, & Kosterman, 2000). Racial minorities must regularly contend with group stereotypes, individual prejudice, and discrimination (Crocker, Major, & Steele, 1998; Major, Quinton, & McCoy, 2002), while majority group members may harbor stereotypes that lead them to mistrust outgroup members (e.g., Eberhardt, Goff, Purdie, & Davies, 2004; Niemann, Jennings, Rozelle, Baxter, & Sullivan, 1994) as well as concerns regarding being seen as prejudiced (Crandall & Eshleman, 2003; Monin & Miller, 2001; Monteith, Sherman, & Devine, 1998; Plant & Devine, 1998; Richeson & Shelton, 2003). Thus, in racially diverse settings, individuals from both minority and majority groups often seem to experience forms of social identity threat—that is, contextually triggered concerns about being judged negatively because of their identity (Steele, 2003; Steele, Spencer, & Aronson, 2002), potentially undermining intergroup relations.

As demonstrated by recent research, however, several factors can shift the outcomes of interracial interactions in more positive or negative directions. These include individuals' implicit and explicit biases (Dovidio, Kawakami, & Gaertner, 2002; Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997), amount of prior intergroup

contact (Blascovich, Mendes, Hunter, Lickel, & Kowai-Bell, 2001), levels of concern about the interaction (e.g., Shelton, 2003; Shelton & Richeson, 2006a; Vorauer & Turpie, 2004), motivation to appear unbiased (Plant & Devine, 1998), impression management strategies (Apfelbaum, Sommers, & Norton, 2008), framing of interaction goals (Trawalter & Richeson, 2006), and ways of coping with the stress of the situation (Trawalter, Richeson, & Shelton, 2009). Despite the profound gains in knowledge these findings represent, the psychological study of interracial interactions remains a relatively young field, spanning only a few decades. As the study of this important topic continues, I¹ hope to lay out a new approach in this dissertation to help address the factors that may be influencing interracial interactions.

This approach may be characterized by three main themes. First, the approach is *intersectional*, in that race is studied in conjunction with other social identities. Every individual has an array of social identities, including race, age, gender, and others. These identities do not exist in isolation, but rather influence each other in a number of ways—both in terms of perception and experience, as gathering evidence attests (Bodenhausen, 2010; Cole, 2009; Goff, Thomas, & Jackson, 2008; Purdie-Vaughns & Eibach, 2008). Most studies on interracial interactions tend to focus solely on race, but intersectional influences of gender and age on interaction outcomes may play an important role. Second, the approach is *relational*. As noted by Shelton and Richeson (2006b), interracial interactions involve more than one party, yet studies typically report data from only one member of the interaction. This is due to a number of factors. For example, limitations in

¹ Throughout this dissertation I use the first person, but it should be noted that there were many others that assisted in these studies, and are included as authors in the manuscripts for publication. In particular, Laura G. Babbitt was an integral part of conducting the meta-analysis, and so for those sections especially, the word “I” should be interpreted in the collective sense.

participant pool racial diversity may lead researchers to use confederates or research assistants as interaction partners or to use prerecorded video or audio stimuli to create the illusion of an interaction. Though the methodological appeal of such studies is apparent, this strategy provides a view of interracial interactions that does not reflect the dynamics of naturalistic interchange. It also contributes to a research literature that disproportionately reflects the experience of majority group members. Instead, in studying interracial interactions, it is important to ensure that the experiences of both racial minority and majority individuals are examined. Third, this approach must take *contextual* features into account. Generally speaking, social psychology emphasizes the power of the situation. Of course, in the typical experiment, most elements of a situation are kept constant across conditions as only one or two main variables of interest are manipulated. Although most of the elements held constant—such as the structure, frequency, and location of the interaction—are usually considered incidental aspects of the design of any one study, across the literature as a whole they may impact the context of interactions and, accordingly, their outcomes. Other potentially important factors cannot be manipulated, such as historical context, as indicated by the year in which the study took place. As social norms about race change, so too might the outcomes of interracial interactions relative to same-race interactions.

PART I: META-ANALYSIS

An intersectional, relational, and contextual approach to interracial interactions leads to a number of questions that would be difficult or unfeasible to examine via experimental studies, but that a meta-analysis is uniquely well-suited to answer. There have been excellent reviews on interracial interactions (Crosby, Bromley, & Saxe, 1980;

Shelton & Richeson, 2006b; Shelton, Richeson, & Vorauer, 2006; Trawalter et al., 2009; Vorauer, 2006), and a meta-analytic examination of the effects of intergroup contact on improving attitudes toward outgroups (Pettigrew & Tropp, 2000, 2006) as well as one on interracial helping behavior (Saucier, Miller, & Doucet, 2005). But the time is ripe for a quantitative analysis of interracial interactions more broadly—one that takes stock of the field and examines elements that have not yet been systematically studied, but may nevertheless shape the outcomes of interracial interactions.

To obtain a multi-faceted view of how interracial interaction outcomes differ from same-race interaction outcomes, four variables of theoretical and practical interest were examined. To explore how the individuals in an interaction felt about each other, I utilized participant-reported ratings of their interaction partners, and measures of nonverbal behavior toward partners. While the former may reflect explicitly-held attitudes expressed in verbal and controlled behavior, the latter can be indicative of more implicit and uncontrolled racial attitudes—those that people are not aware of, or are not willing to acknowledge (Crosby et al., 1980; Dovidio et al., 1997, 2002; Fazio, Jackson, Dunton, & Williams, 1995). To examine how participants felt about themselves during the interaction, participant reports of personal affective states were included. This was of interest because interracial interactions can evoke negative affect on the part of the individuals involved (e.g., Amodio, 2008; Britt, Boniecki, Vescio, Biernat, & Brown, 1996; Ickes, 1984; Stephan & Stephan, 1985), sometimes due to concerns about prejudice (Plant & Devine, 2003; Shelton, 2003). Finally, performance was assessed in interactions by including results from studies where participants undertook tasks with objective and measurable outcomes (e.g., Dovidio, 2001; Dovidio, Gaertner, Kawakami, & Hodson,

2002). These four outcomes were investigated generally and in relation to the following potential moderators, loosely grouped by category.

Intersectional Moderators

To use an intersectional approach to the study of interracial interactions, I sought to examine the influence of a range of social identities. The list of identities that could influence interaction outcomes in conjunction with race is large; I chose to focus on gender and age because these two identities, along with race, are processed immediately and automatically, and profoundly influence our perceptions and expectations of others (Brewer, 1988; Fiske & Neuberg, 1990; Ito & Urland, 2003; Stangor, Lynch, Duan, & Glass, 1992). In addition, relative to other categories like socio-economic status, gender and age are categories for which researchers provide participant data most consistently.

Gender. In general, women report more positive race-related attitudes than men (Eagly, Diekmann, Johannesen-Schmidt, & Koenig, 2004; Hausmann & Ryan, 2004; Johnson & Marini, 1998; Sidanius & Pratto, 1999; Sidanius, Pratto, & Bobo, 1994). These differences in attitudes may be due to gender stereotypes and socialization patterns, which suggest that women should have more nurturing and amiable personalities (Berger, Rosenholtz, & Zelditch, 1980; Eagly, 1987). Consistent with these stereotypes, women are more likely to describe themselves as warm and nurturing (Costa, Terracciano, & McCrae, 2001; Feingold, 1994), and women's endorsement of these typically feminine qualities is linked to greater internal motivation to avoid prejudice (Ratcliff, Lassiter, Markman, & Snyder, 2006) and support for equality of social groups (Foels & Pappas, 2004; Wilson & Liu, 2003). Another possible moderator of this relationship between gender and racial attitudes is attributional complexity: Women tend

to prefer complex explanations of human behavior, and this attributional style in turn predicts more positive racial attitudes (Foels & Reid, 2010; Tam, Au, & Leung, 2008).

There may also be differences in men and women's responses to interracial encounters, with women being more likely than men to respond to the stress of an interracial interaction with positive engaged behavior (Taylor et al., 2000). For example, when experiencing intergroup anxiety, White women responded by acting friendlier toward an other-race partner, while White men acted less friendly (Littleford, Wright, & Sayoc-Parial, 2005). Interestingly, minority group members also feel that women respond to them more positively. A national survey study found that Black individuals expect White women to be easier to get along with than White men (Timberlake & Estes, 2007).

Gender also influences the stereotypes directed at racial minorities. Negative racial attitudes toward outgroup members tend to be disproportionately directed at men (Purdie-Vaughns & Eibach, 2008; Sidanius & Pratto, 1999). General stereotypes of Blacks are more likely to apply to Black men than Black women (Goff, Thomas, & Jackson, 2008); for example, Black men are more likely than Black women to be seen as criminal (Niemann et al., 1994). Meanwhile, racial minority women may have to contend with the relative invisibility that comes from being the less-prototypical members of an already marginalized group (Purdie-Vaughns & Eibach, 2008). This invisibility may mean that Black women are less likely to be the targets of prejudice, but it also means that Black women are less memorable to Whites: their faces, and their contributions to discussions, are more likely to be forgotten (Sesko & Biernat, 2010).

The gender composition of a dyad also seems to be a critical element of interracial interactions. For example, cross-sex interracial dyads may have worse outcomes than same-sex interracial dyads, because neither race nor gender is shared by the members of the dyad. In many cases, individuals who are outgroup members in one sense (e.g., a different race), but share another group identity (e.g., the same gender), are evaluated more positively than individuals who are outgroup members across both identities (Crisp & Hewstone, 2007). From an evolutionary perspective, some have argued that because men have historically been dominant, and have competed with each other for resources, the greatest interracial tension will be between men (Sidanius & Pratto, 1999; Van Vugt, De Cremer, & Janssen, 2007; Yuki & Yokota, 2009). The research cited above indicating that White men tend to have more negative racial attitudes, coupled with findings that racial minority men report experiencing more discrimination (for a review see Sidanius & Pratto, 1999), suggests that an interracial interaction between two men might have more potential for tension than an interracial interaction with at least one female partner. Another evolutionary perspective argues that men and women both show greater bias against outgroup men than against outgroup women, but for different reasons. Specifically, this research suggests that men's racial bias is linked to aggression and social dominance motives, while women's racial bias is linked to fear of sexual coercion (Navarrete, McDonald, Molina, & Sidanius, 2010). While that work takes an evolutionary perspective, other research describes cultural and historical factors that could underlie gender differences in racial bias—e.g., longstanding portrayals of Black men as savage, sexually aggressive, and a threat to White women (Jahoda, 1998; Pieterse, 1995). Both the evolutionary and cultural-historical approaches suggest that the gender of

both members of an interracial interaction should be taken into account, however. Thus, both participant gender and the gender composition of the dyad need to be considered in interracial interactions.

Age of participants. Among racial majorities, older adults are often stereotyped as being less tolerant than younger adults (Hummert, Garstka, Shaner, & Strahm, 1994). Successive cohorts of adults often show patterns of decreasing prejudice, perhaps due to changing social norms (Danigelis & Cutler, 1991; Firebaugh & Davis, 1988); however, in some cases younger cohorts of adults may show equal levels or even more prejudice than older cohorts (Blinder, 2007; Wilson, 1996). Furthermore, to the extent that older racial majority adults do express more negative racial attitudes than younger adults on both explicit and implicit measures, these age differences might be better explained by an age-related decrease in the ability to inhibit these negative responses, not by underlying differences in actual attitudes (Krendl, Heatherton, & Kensinger, 2009; Stewart, von Hippel, & Radvansky, 2009; von Hippel, Silver, & Lynch, 2000). Life experience may play a role in racial attitudes as well, though it is hard to determine whether this factor would predict more positive racial attitudes in college students or in older adults. On one hand, college students may have more positive racial attitudes, as many campuses provide opportunities for equal-status contact between racial groups (Pettigrew & Tropp, 2006). On the other hand, to the extent that older racial majority adults have had more experience in diverse settings, that interracial contact can also improve racial attitudes. While there is less research on the attitudes of racial minorities, one study found that older Black individuals viewed Whites more positively (Powers & Ellison, 1995). Because evidence for age's role in predicting racial attitudes is decidedly mixed, and

because the findings of studies with college-aged participants are often assumed to generalize to the broader population, I investigated the relationship between age and interracial versus same-race outcomes.

Relational Moderators

In taking a relational approach, I examined in particular those elements of natural interactions that are often sacrificed due to constraints on experimental design, such as participant pool demographics. First, outcomes for racial majority participants were compared to those for racial minority participants; more research has examined the experiences of racial majorities, but these findings cannot necessarily be generalized to the experiences of racial minorities (Shelton & Richeson, 2006b). I also looked at the effects of two common methods to address the relative scarcity of racial minority participants: use of study personnel versus naïve participants as interaction partners, and use of technology, such as video and audio, to mediate interactions versus face-to-face interactions.

Majority or minority status of participants. Minority group members by definition are in the numerical minority across many social contexts. Accordingly, relative to racial majorities, racial minorities are likely to have more opportunities for interracial encounters. Their outcomes in these encounters may reflect this additional experience. For example, an interracial interaction may provoke less anxiety in minority group members than in majority group members. White individuals in interracial interactions are more likely than their Black partners to report that the interaction was uncomfortable, awkward, forced, and strained (Ickes, 1984), and to express more nonverbal anxiety than their Black partners in race-related or race-neutral interactions

(Trawalter & Richeson, 2008). This is not to say that minority group members do not feel anxiety or concerns about interracial contact. Concerns about being a target of prejudice have grave consequences, not just for emotional well-being, but also for physical health and academic performance (Clark, Anderson, Clark, & Williams, 1999; Mays, Cochran, & Barnes, 2006; Mendoza-Denton, Downey, Purdie, Davis, & Pietrzak, 2002; Steele & Aronson, 1995). However, members of stigmatized racial minority groups may have developed compensatory strategies to buffer some of the effects of being a target of prejudice (Branscombe, Schmitt, & Harvey, 1999; Crocker & Major, 1989; Miller & Kaiser, 2001), and in particular, strategies for engaging in interactions with potentially prejudiced majority group members. For example, one study found that ethnic minorities who expected to interact with a prejudiced individual behaved in a more engaging and involved manner with their partners, although they enjoyed the interaction less than participants who were not given that expectation (Shelton, Richeson, & Salvatore, 2005).

Yet another way in which interracial outcomes may differ for racial majorities and minorities is through outgroup-favoring attitudes held by minority members. Internalization of negative attitudes about one's own racial group may affect outcomes of interactions with other racial groups. Research on implicit racial attitudes has shown that in the U.S., for example, Black individuals do not consistently show an ingroup bias (Ashburn-Nardo, Knowles, & Monteith, 2003; Livingston, 2002; Nosek, Banaji, & Greenwald, 2002; Richeson, Trawalter, & Shelton, 2005). These implicit racial attitudes predict the degree to which ethnic minorities show temporary declines in performance on a Stroop (1935) task after interracial interactions (Richeson et al., 2005). Thus, the extent

to which participants' racial group status may be a moderator of interracial interaction outcomes was also investigated in this meta-analysis.

Study personnel versus naïve partners. Because racial minority students are a numerical minority on many campuses, and because the use of trained confederates provides greater control over the interaction (Guerrero & Poire, 2005; Martin, 1970), many interracial interaction studies use confederates or experimenters as interaction partners. Others use naïve partners, such as other participants, mentors, employers, or roommates, in order to study the relational dynamics of these interactions (Shelton & Richeson, 2006b). Individuals' expectations of the interaction may alter their behavior; therefore, the use of naïve partners can lead to different dynamics than use of study personnel (Miller & Turnbull, 1986). For example, naïve partners who are expecting to be treated with prejudice may engage in positive compensatory behaviors to try to counter that likelihood (e.g., Shelton, Richeson, & Salvatore, 2005) and those who are expecting to be viewed as prejudiced may try to allay that impression through their behavior (e.g., Apfelbaum et al., 2008; Shelton, Richeson, Salvatore, & Trawalter, 2005). On the other hand, if during the course of the interaction naïve partners feel misjudged, they may naturally react more negatively than trained confederates, who may dampen their natural response because of instructions to remain neutral toward the participant. Thus, while the use of confederates can provide a clearer picture of race-related differences on the level of the individual participant, the use of naïve partners may more closely mirror the relational dynamics that occur in real-world dyadic interactions. One important question, therefore, is whether the use of naïve partners instead of study personnel tends to have a specific directional influence on interaction outcomes.

Accordingly, I compared studies that used confederates or other study personnel to those that used naïve partners, to examine whether partner identity would affect outcomes.

Mode of interaction. Interactions may occur not only when people encounter each other in person, but also through other media, such as email, audio, or video. I examined the difference between studies with face-to-face interactions and those with interactions mediated through technology, as these two types of interactions may involve different relational dynamics. Previous research has indicated differences between face-to-face and other forms of interaction—particularly computer-mediated interactions (Bordia, 1997; Hancock & Dunham, 2001; Kiesler, Siegel, & McGuire, 1984; Short, 1974)—due to the decreased social cues in mediated interactions. However, certain stereotypes and status differentials seem to persist regardless of the format of the interaction (Heilman, Caleo, & Halim, 2010; Postmes & Spears, 2002; Weisband, Schneider, & Connolly, 1995), especially when cues to the identity of the interaction partner are revealed (Pittinsky, Shih, & Trahan, 2006).

Contextual Moderators

In examining the role that context plays in interracial interaction outcomes, I focused primarily on the role of the structure of the interaction—the type of activity the participants were engaged in during the interaction. To examine this in depth, I found it useful to take an intersectional approach here as well and look at the role of gender in relation to interaction structure. Other contextual elements were also investigated: whether the study was conducted in the field or a laboratory setting, whether participants interacted only once or met several times over a longer period, and whether the interaction made race salient to participants. Furthermore, I looked at context in the

broader, historical sense, to see the effects of time and changing social norms on interaction outcomes.

Interaction structure and concerns. Over decades of research on interracial interactions, experimenters have asked participants to engage in a wide range of types of interactions, from getting-acquainted conversations (e.g., Holloway, Waldrip, & Ickes, 2009, Study 3a; Mallett, Wilson, & Gilbert, 2008, Study 2; Vorauer & Kumhyr, 2001), to being interviewed on a sensitive topic (e.g., Amodio, 2008; Richeson & Shelton, 2003; Richeson & Trawalter, 2005) to performing cognitive tasks (e.g., Danso & Esses, 2001; Hofmann, Gschwendner, Castelli, & Schmitt, 2008). The structure of the interracial interaction—i.e., the activity participants engage in—is rarely considered as a factor in the outcome of that interaction, but may in fact be an influential variable. Specifically, several studies suggest that interactions in which the participants' focus is on task performance may have better outcomes than interactions with more uniformly social goals.

When interactions are unstructured and social concerns are paramount, both of the individuals in an interracial interaction may be concerned about prejudice. Racial minority individuals may be working to ensure that the interaction goes smoothly, guarding against any potential prejudice on behalf of their partner (Shelton, Richeson, & Salvatore, 2005). Meanwhile, majority group members may be monitoring their speech and behavior to avoid appearing biased; ironically, this effort may lead them to appear less friendly (Apfelbaum & Sommers, 2009; Apfelbaum et al., 2008). However, when an interaction is structured, such as when it is framed in terms of task performance, these social concerns can be allayed as participants' attention is redirected to the task at hand.

This shift in focus can attenuate the apprehensions provoked by interracial interactions by providing clearer guidelines about how to behave—which should in turn lead to outcomes more similar to those of same-race interactions (Avery, Richeson, Hebl, & Ambady, 2009; Richeson & Trawalter, 2005).

Understanding how the structure of an interaction impacts outcomes is vital to understanding an increasingly diverse society. For example, in the United States, legislative and institutional efforts to combat discrimination have led to much greater racial diversity in workplaces and universities since the 1960s; however, residential and religious segregation has remained largely unchecked (Ellis, 2004; U.S. Department of Education, 2009). Thus, interracial interactions may be more common in work and school contexts than in more intimate social settings, making it important to understand how task-focused interactions may be experienced differently than social-focused interactions.

Interaction structure and gender. I also examined interaction structure in relationship to gender. Previous findings have indicated that men and women's behavior depends in part on the content of the interaction. In initially leaderless groups, men tend to emerge as leaders when the interaction is more task-oriented and structured, whereas women take more leadership roles in socially complex interactions (Carli & Eagly, 1999; Eagly & Karau, 1991). Furthermore, women generally engage in more social behaviors in interactions, whereas men engage in more task-oriented behaviors (Dovidio, Heltman, Brown, Ellyson, & Keating, 1988; Wood & Karten, 1986). I was interested in how the interaction of these factors may play out in an interracial versus same-race context.

Field versus lab studies. Do studies conducted in the controlled setting of the laboratory provide an accurate view of participants' honest responses, particularly in terms of socially sensitive issues like race? Studies conducted in the field were compared with those conducted in the laboratory to see if a naturalistic setting would result in stronger effects, particularly on explicit measures. To the extent that participants feel they are being observed in the environment of the lab, they may respond in line with perceived expectations, monitoring and adjusting their responses to align more closely with expected social norms (Devine, Evett, & Vasquez-Suson, 1996; Reis & Gosling, 2010; Shulman & Berman, 1975).

Frequency of the interaction. Do longer-term interactions lead to a reduction of some of the potential negative outcomes of interracial interactions in relation to same-race interactions? Long-term interactions may allow for greater individuation of interaction partners and less reliance on group stereotypes (Shelton & Richeson, 2006b). While many studies involved a one-time-only encounter, a few studies have examined outcomes for longer-term encounters such as roommate pairings, mentoring relationships, or multi-session meetings in the laboratory. Comparing these two types of studies allowed me to examine whether outcomes for interracial interactions would change in long-term compared to one-time-only interactions, relative to those for same-race interactions.

Salience of race. I also investigated the effect of making race salient in the interaction—for example, by priming participants with the potential for racial bias before the interaction (e.g., Amodio, 2008; Dutton & Lake, 1973), having participants discuss race-related topics, such as affirmative action or racial profiling (e.g., Richeson et al.,

2003), or having a confederate partner mention race in some way (e.g., Czopp, Monteith, & Mark, 2006). Making race salient may activate normative racial attitudes for members of racial majority groups (Sommers & Ellsworth, 2001), thus leading to heightened self-presentational concerns and greater self-monitoring behavior, compared to the discussion of neutral topics. For example, the White participants in studies by Goff, Steele, and Davies (2008) showed greater concern about being seen as racist when they anticipated discussing a race-related, versus race-neutral, topic with Black individuals (see also Sommers, Warp, & Mahoney, 2008). However, the prospect of an interracial interaction alone—without mention of a race-relevant topic—may be sufficient to provoke that concern (e.g. Trawalter & Richeson, 2008; Vorauer, Main, & O’Connell, 1998). For racial minorities, on the other hand, race may always be salient at some baseline level, and therefore an experimental manipulation to make race salient may not have an effect (Sommers & Ellsworth, 2000) or may actually relieve anxiety in an interracial setting (Trawalter & Richeson, 2008). Therefore, making race salient may influence outcomes across a range of studies.

Historical trends. In considering outcomes of interracial compared to same-race interactions, one must take into account the effects of societal change. With the emergence of more inclusive social norms, explicit expressions of racial attitudes have gradually become less biased; however, people often harbor more racially prejudiced views than they are willing to report (e.g. Dovidio & Gaertner, 2000; McConahay, 1986; Sears et al., 2000). I examined whether there has been a trend toward more egalitarian outcomes over the past four decades, or if the differences between interracial and same-race interactions have been consistent over time. Have self-reported, explicit attitudes

towards other-race partners become significantly more egalitarian? Have implicit attitudes toward other-race partners shown similar progress? Furthermore, have the social changes of the past few decades been accompanied by any improvement in how interracial dyads perform compared to same-race dyads, or how the individuals in the interactions feel during the course of the interaction?

With all these questions in mind, I performed a quantitative analysis of the literature. My first goal was to investigate four outcomes of interracial interactions compared to same-race interactions: self-reported attitudes toward partners, participants' emotional state, nonverbal or observed behavior, and performance, generally. My second goal was to examine how these outcomes may be impacted by the contextual, relational, and intersectional considerations outlined above.

Method

Literature Search

I started with bibliographic lists from several reviews on related topics. Using combinations of the following keywords: *intergroup*, *interpersonal*, *cross-race*, *interracial*, and *contact*, *interactions*, *anxiety*, *relations*, *dyads*, *pairs*, and *race relations*, a search was conducted on electronic databases of articles (PsycInfo, ERIC, Sociological Abstracts, Current Contents, Web of Science, JSTOR, Dissertations and Theses Abstracts International, and GenderWatch). Forward and backward citation checks were performed for the articles that fit the criteria to see if they would lead to any others. The table of contents of the following journals were also examined as far back as could be accessed using print and electronic resources to search for additional articles that had evaded other search methods: *Journal of Personality and Social Psychology*, *Journal of Experimental*

Social Psychology, Psychological Science, Group Processes and Intergroup Relations, Personality and Social Psychology Bulletin, Personality and Social Psychology Review, Social Psychology Quarterly, Journal of Organizational Behavior, Child Development, Journal of Applied Psychology, Journal of Applied Social Psychology, International Journal of Intercultural Relations, Cultural Diversity and Ethnic Minority Psychology, Basic and Applied Social Psychology, Social Cognition, Ethnic and Racial Studies, Journal of Black Psychology, Journal of Black Studies, Asian American Journal of Psychology, Hispanic Journal of Behavioral Sciences, Emotion, and Psychology of Men and Masculinity. Finally I sent out a general appeal to the SPSP and SPSSI listserves, supplemented by personal contact with several researchers, to request any file-drawer, in-press, or in-preparation manuscripts that they would be willing to contribute for inclusion in this meta-analysis. These methods combined resulted in about 4,000 articles marked for closer inspection to identify those which met the following inclusion criteria.

To be included, a study had to involve interracial interactions via face-to-face interactions, video, audio, internet, or other means. As long as participants believed they had interacted with someone else, the study was included. Studies that involved anticipated interactions, where the study was stopped before the interaction would have begun, or where participants were exposed only to images of outgroup members without the suggestion of an interaction, were excluded. I included only studies that had two people in an interaction, because I was interested in understanding the dynamics of this most basic form of interaction, without introducing the more complicated dynamics of multiple-person groups. In order to calculate effect sizes, the dataset was constrained to studies that featured both an interracial interaction condition and a same-race control

condition. Finally, I included only those studies whose dependent variables fell into at least one of the designated categories:

(a) Attitudes toward partner. This category included all participant-reported data on positive and negative attitudes toward their partner. These data most frequently took the form of participants' ratings of liking of their partner, or ratings of their partner on a list of positive and negative personality traits. Other measures included ratings of relationship satisfaction or desire to become friends or romantically involved with the partner.

(b) Participants' emotional state. This category included all participant-reported data on their own emotional states. The most common measure included in this category was anxiety, followed by composite measures of internally-directed positive and negative emotions and self-esteem.

(c) Nonverbal or observer-rated behavior. This category was composed primarily of ratings by interaction partners or third-party observers who rated the participants' friendliness or discomfort through their nonverbal behavior. In some cases observers viewed videotapes with sound, meaning that the behavior coded was not strictly nonverbal, but I decided to include these data because they still provided information on nonverbal leakage—or expression of attitudes not readily apparent through the self-report measures (Ambady, Bernieri, & Richeson, 2000).

(d) Performance on task. This category included tasks which had a preferred and objectively determinable outcome. Effect sizes included in this subgroup were from measures of helping behavior, cooperative behavior in economic games, memory retention for word lists, word search performance, math questions correctly answered,

successful mentorship, quality of health care offered to patients, and performance on Stroop (1935) tests of cognitive interference.

To preserve independence assumptions in calculating effect sizes, I combined measures from each sample that fell into the same dependent variable category. For example, if a sample included separate measures of self-reported anxiety and discomfort, those measures were combined into one effect size for participants' emotional state. In this way, I ensured that each group of participants contributed only one effect size to each analysis. In several cases multiple publications, or a dissertation and resulting publications, were based on the same dataset; these were considered one sample to preserve independence. There were some studies which did not have sufficient data to calculate effect sizes. An attempt was made to contact the authors in these cases, but if no answer was received or the data were nonrecoverable, these studies were excluded ($k = 5$). This left 108 samples that met the criteria across 81 journal articles. From these samples I was able to calculate 165 effect sizes.

Coding Procedure

Each article was independently coded by either my collaborator Laura G. Babbitt (LGB) or me, and between one and five trained research assistants. All kappas were above .78, with a median kappa of .95. Discrepancies were resolved by LGB and me through discussion. For each study, coders recorded the authors, title, year, study number, publication type, and journal name if applicable. Information was coded on participants: total number of participants for the experimental (interracial) and control (same-race) groups, race, percentage of female participants, and age (college students or a non-college sample of adults). Information on partners was also collected: race, age, and

whether the partner was a stranger (i.e., another naïve participant), roommate, confederate partner, experimenter, or other. Finally, it was noted whether the study design was between-participants, within-participants, or a mixed-model, and recorded the race and sex of the first author, and, when applicable, the experimenter and any observers.

Data were also collected on the nature of the interaction: whether it was immediate or via video, audio, internet, paper-based, or other means; whether it was in the lab or field (roommate, classroom, or other); the gender composition of the dyads; and if it was a one-time only or a repeated interaction. The nature of the task that the dyads engaged in was noted: free interaction, a get acquainted task, assigned topic of discussion, interview, speech, structured discussion (i.e., reach consensus), structured activity, helping behavior, or other. If race was made salient in the interaction, if self-presentational concerns in the interaction were manipulated (either reduced or increased), and if there were power differences in the interaction, these were all noted. Finally, each dependent variable, the source of the data (participant, partner, or observer), and the direction of the findings was coded, as was the use of any explicit or implicit bias measures or other individual difference measures, and whether these measures were administered before the study in a separate session, immediately before participants interacted, or after the main dependent variables were measured.

Effect Size Calculation

I calculated effect sizes using the r statistic, as recommended by Rosenthal (1991), through one of several methods. If the study reported an F value with one degree of freedom in the numerator, a t value, a χ^2 value with one degree of freedom, or a Z

value, that directly compared the outcomes for the same-race and interracial dyads, then I was able to calculate the r value using formulas provided in Rosenthal (1991). Studies which reported a β value were included as well, using the approximation suggested by Peterson and Brown (2005). Alternatively, if studies did not directly provide these statistics I was often able to obtain the means, standard deviations, and sample sizes so that a two-sample t-test could be calculated comparing the same-race and interracial dyads (Rosenthal & Rosnow, 1991). When multiple values for the same category of dependent measures could be calculated from a single participant sample, the effect sizes were averaged into a single value, using an unweighted Fisher's Zr transformation. This preserved statistical independence of studies.

When results indicated the presence of bias in favor of same-race partners over other-race partners, the effect sizes were considered congruent with expectations of prejudice in interracial interactions and were assigned a positive sign. When results showed a bias in favor of other-race partners over same-race partners, the effect sizes were assigned a negative sign. When authors reported no significant differences between interracial and same-race dyads, and sufficient data could not be obtained to calculate an exact value or direction, those effect sizes ($k = 19$) were set equal to zero. I performed calculations both with and without these zero values and found that this had a minimal impact on effect sizes. I chose to include the null results in all the reported statistics as a more conservative approach. The magnitude of effect sizes was interpreted using guidelines suggested by Hemphill (2003), based on patterns evident in an examination of 380 meta-analyses (Lipsey & Wilson, 1993; Meyer et al., 2001). Hemphill recommends that effect sizes over 0.30 should be considered large, those between 0.20 and 0.30

considered medium, and those between 0.00 and 0.20 considered small. At the same time, all attempts to categorize effect size magnitude should consider the context of the research.

Study Characteristics

The final dataset consisted of 81 articles with 108 samples comprising a total of 12,463 participants. The sample sizes ranged from 14 participants to 1248 participants, with a median of 72 ($M = 115.40$, $SD = 157.91$). (See Table 1, in Appendix.) The years of publication (or submission for theses and dissertations, and contribution for unpublished manuscripts) for the samples I gathered ranged from 1964 to 2010 (the median year was 2001, and the mean was 1994). The distribution of publication years shows a bimodal tendency, with a peak in the 1970s, followed by a lull in the 1980s and 1990s, and then another peak across the last decade. Figure 1 presents a stem-and-leaf plot of the publication years for the collected samples. Differences between the studies in each peak may reflect changing trends in the study of psychological phenomena more generally. The articles in the 1970s tended to focus more on explicit, behavioral measures that were often measured in field settings, whereas those in the last decade reflected a burgeoning interest in social cognition and implicit processes, often inside the laboratory.

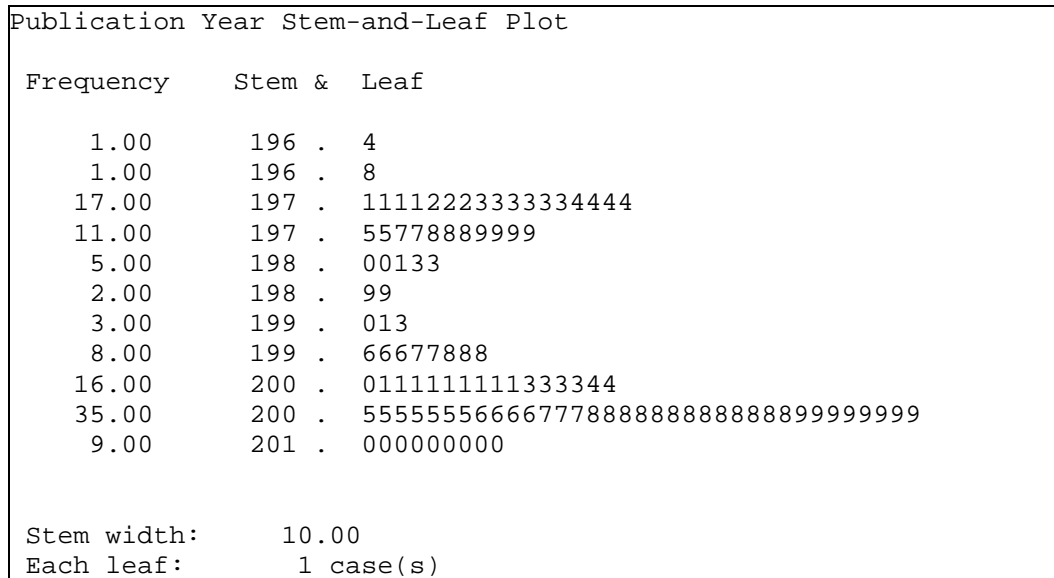


Figure 1. Stem-and-leaf plot showing publication years for samples used in the meta-analysis.

These differences can be illustrated with examples of representative studies from each time period. In an article published in 1971, participants were shoppers exiting a supermarket. A Black or White confederate stood in front of the market with a bag full of groceries, and when given the signal by an accomplice, the confederate surreptitiously ripped the bottom of the bag, spilling its contents and giving the participant an opportunity to offer assistance. The dependent variable was whether the shopper helped the confederate (Wispe & Freshley, 1971). Another method commonly used in this time frame was the wrong-number technique, first employed by Gaertner and Bickman (1971). Participants were selected from the phone book and called by a Black or White confederate pretending to be a stranded motorist. In the phone call, the motorist indicated that he or she had been trying to reach a garage to request assistance, and had no more dimes to make another phone call to the correct number. The participant then had the

opportunity to help the motorist by calling the provided number. The outcome variable was the participant's helping behavior, depending on the race of the confederate as conveyed through vocal cues (e.g., Franklin, 1974; Gaertner, 1973; Gaertner & Bickman, 1971).

An example of a study from the past decade is Apfelbaum, Sommers, and Norton (2008, Study 2), in which White participants came to the lab and interacted with a Black or White confederate in a structured task, which involved asking questions about an array of pictures. After the interaction, participants completed self-report measures of anxiety and a computer task measuring cognitive depletion. Participants were also videotaped and their nonverbal behavior was later coded by naïve raters. Another example of a recent study design is one focused on college roommate interactions. For example, in a study by Shelton and Richeson (2006a, Study 2), ethnic minority participants who had either White or minority roommates completed a series of daily questionnaires about the quality of their contact with that roommate, their sense of closeness, and their own affective state. A few studies from this time period also included physiological and neurological measures (e.g., Amodio, 2008; Littleford et al., 2005; Mendes, Major, McCoy, & Blascovich, 2008). Because of the limited number of studies of this type, I felt it was premature to include these measures as a fifth outcome variable in this meta-analysis, but they provide evidence of another emerging trend in the study of intergroup relations.

Given the heterogeneity of the studies, I used random-effects models to calculate the overall effect sizes, and mixed-effects models for the subgroup analyses, using appropriate weightings in all calculations. Random-effects models are more conservative than fixed-effect models and allow for generalization beyond the set of studies included

in the meta-analysis (Borenstein, Hedges, Higgins, & Rothstein, 2009; Fink, 2005; Hedges & Vevea, 1998; Overton, 1998). The software package Comprehensive Meta-Analysis (Version 2, Borenstein, Hedges, Higgins, & Rothstein, 2005) was used to perform subgroup analyses and simple regressions, and Stata (Version 10, Harbord & Higgins, 2008) was used to calculate meta-regression analyses

Results

I began by exploring the overall means for each of the four main categories of interest. Table 2 contains the descriptive statistics, reported as r values. Higher values for the effect sizes indicate more bias in favor of same-race dyads, zero values indicate no difference between same-race and interracial dyads, and negative values indicate a bias favoring interracial dyads.

Overall mean effect sizes. The first outcome measure included all participant-reported data on attitudes toward partners, such as interpersonal liking or trait ratings. Forty-one samples included this measure as a dependent variable, with an average effect size of $r = .07$. The lower bound for the 95% confidence interval was zero, and a two-tailed Z-test comparing the combined effect sizes to zero was marginally significant, indicating that participants showed a marginal tendency to express more negative attitudes toward other-race partners than toward same-race partners. The second outcome measure, participants' emotional state, included all participant-reported data on their own emotional states, such as anxiety, self-esteem, and other measures of positive and negative emotions. Thirty-two samples included this measure, with an average effect size of $r = .10$. The confidence intervals did not include zero, and a two-tailed Z-test confirmed that the mean effect size was significantly different from zero, indicating that

participants felt more negative affect in interracial dyads than in same-race dyads. The third outcome measure, nonverbal or observed behavior, included ratings of participants' actual behavior during the interaction, typically made by third-party observers or interaction partners. These ratings were provided as a dependent variable for 37 samples. One outlier, which exceeded three standard deviations from the mean, was replaced with the next highest value. The average effect size was $r = .09$, and confidence intervals and a Z-test indicated that participants were significantly more likely to show negative behavior toward other-race partners than toward same-race partners. The final outcome measure, performance, included tasks which had a preferred outcome, including helping behavior, performance on memory tasks, word-searches, math tests, and other measures of executive function and work quality. A total of 55 samples included this measure, with an average effect size of $r = .07$. Here again, a Z-test and confidence intervals indicated that this was significantly different from zero, such that same-race dyads performed better than interracial dyads.

Table 2.

Effect Size, Significance, and Heterogeneity Statistics for Interracial Interaction Outcome Variables

Outcome Variable	<i>k</i>	<u>Effect Size and Significance</u>			<u>Heterogeneity</u>	
		Mean <i>r</i>	95% CI	Z (2-tailed)	<i>Q_w</i> (<i>k</i> -1)	<i>I</i> ²
Attitudes toward partner	41	.07	[.00, .14]	1.92 ^a	172.42***	76.80
Participants' emotional state	32	.10	[.05, .16]	3.51***	77.45***	59.97
Nonverbal or observed behavior	37	.09	[.02, .15]	2.54**	108.19***	66.73

Performance	55	.07	[.03, .11]	3.24***	165.06***	67.29
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Note. ^a $p = .055$, ** $p \leq .01$, *** $p \leq .001$; k indicates number of samples, r is the point estimate for mean effect size calculated using random effects models, with higher values indicating more bias favoring same-race dyads over interracial dyads, 95% CI provides the lower and upper bounds of the confidence interval for the point estimate, Z (2-tailed) provides Z -values used to determine if value is significantly different from zero, $Q_w(k-1)$ provides Cochran's test of heterogeneity; I^2 measures the percentage of variation across samples due to heterogeneity rather than chance.

Addressing the potential for selection bias. The term selection bias refers to the possibility that some effect sizes may be systematically missing from the overall dataset, thus affecting meta-analytic results. A major form of selection bias is publication bias, or the file-drawer problem. That is, most published articles present significant findings, and thus a meta-analysis of published works could lead to an overestimation of effect sizes if there were a substantial number of unpublished studies with null results languishing, as it were, in researcher's file drawers (Rosenthal, 1979). I attempted to decrease this potential threat to validity by contacting researchers directly, as noted above, to request any unpublished data that fit the criteria. I also examined differences between published and unpublished samples in the final dataset; if they differed significantly, this could be seen as evidence of publication bias in the field in general. There were no differences for participant's emotional state or for performance. However, for nonverbal or observed behavior, unpublished samples ($k = 8$, $r = -.06$, 95% CI [-.21, .09]) tended to show lower effect sizes than published samples ($k = 29$, $r = .13$, 95% CI [.06, .20]), $Q_b(1) = 5.26$, $p =$

.022. Also, for measures of attitudes toward partner, average effect sizes for unpublished samples ($k = 9$, $r = -.15$, 95% CI [-.30, .19]) were lower than those for published samples ($k = 32$, $r = .13$, 95% CI [.07, .19]), $Q_b(1) = 9.59$, $p = .002$. These results point toward the possibility of publication bias in the field as a whole. However, in the datasets for these two outcome variables, Egger's regression asymmetry test (Egger, Smith, Schneider, & Minder, 1997) did not detect the presence of asymmetry in the distribution of studies around the mean effect size, which would have been a potential sign of selection bias in the dataset. The data also showed no asymmetry for measures of performance. In the case of participants' emotional state, Egger's test suggested asymmetry not on the left side, which might be seen in the case of publication bias, but on the right side, suggesting the possibility of missing studies with higher effect sizes. I used Duval and Tweedie's (2000) trim-and-fill procedure to estimate the number of missing studies and impute an overall effect size that takes these missing studies into account. The adjusted value obtained through this procedure was $r = .15$, 95% CI [.09, .21], with six data points imputed. This adjusted effect size can serve to provide a sense of the potential impact of selection bias, but because it is based partly on imputed, not real, data points, I carried out all subsequent analyses with the original dataset. Furthermore, caution is necessary in interpreting these tests. Selection bias is only one of many potential causes of asymmetry in the distribution of effect sizes, and is particularly difficult to ascertain in the case of heterogeneous samples (Egger et al., 1997; Ioannidis & Trikalinos, 2007; Sterne, Gavaghan, & Egger, 2000; Terrin, Schmid, Lau, & Olkin, 2003).

Tests of heterogeneity. Although the effect sizes calculated for the four outcome variables seem to be small in magnitude based on guidelines suggested by Hemphill

(2003), even so-called “small” effects can have major consequences (Prentice & Miller, 1992; Rosenthal, 1990). It is also worth noting that the sample was comprised primarily of studies intended to investigate which aspects of interracial interactions lead to better or worse outcomes, not to measure the overall magnitude of the difference. Furthermore, this highlights the second goal of the meta-analysis, to investigate the intersectional, relational, and contextual factors that may moderate the difference between interracial and same-race interaction outcomes. To test the heterogeneity of effect sizes, I used both Cochran’s Q-test (Cochran, 1954) and the I^2 value (Higgins, Thompson, Deeks, & Altman, 2003). The results for both, included in Table 2, showed that without exception, the effect sizes for all variables of interest were significantly heterogeneous and that moderator analyses were therefore warranted for practical reasons in addition to prior theoretical reasons. To examine these moderators, I ran a series of subgroup and regression analyses. Factors with two levels were assessed using separate mixed-effect subgroup analyses, while continuous factors were assessed using random-effects meta-regressions. When factors were correlated with each other, as was the case for several of the study-design elements, a random-effects multiple meta-regression was employed with the method of maximum-likelihood.

Intersectional Moderator Analyses

Gender composition of dyads. To investigate the effects of gender composition of dyads, I divided the effect sizes into those that represented samples featuring only same-sex dyads and those that included cross-sex interactions. I did not include those samples for which dyadic gender composition was not reported. Results showed that gender composition had a significant effect on participants’ emotional state: there was

more bias favoring same-race over interracial dyads when dyads were mixed-sex as opposed to same-sex (see Table 3). In other words, interacting with someone of another race resulted in more negative affect relative to same-race interactions particularly when the partner was of a different gender. Interacting with someone of the same sex minimized the difference between interracial and same-race interactions. To follow up on this finding, I compared male-male dyads with female-female dyads. Of the gathered articles, I was able to obtain separate data for 25 studies featuring male-male and female-female dyads (21 of these were studies which used only male or only female participants), and found no significant difference on any of the outcome measures between same-sex male or female dyads.

Percentage female. I examined the relationship between the overall effect size and the percentage of female participants in each sample reporting gender composition using a meta-regression. I did not find significant results for participants' self-reported attitudes toward partner, $Q_b(1,35) = 0.77, p = .38$, participants' emotional state, $Q_b(1,30) = 0.14, p = .71$, or measure of nonverbal or observed behavior, $Q_b(1,31) = 0.47, p = .49$. Performance outcomes approached but did not attain significance, $Q_b(1,43) = 3.04, p = .08$. (See Table 3 for results.)

Age of participants. After controlling for the correlated study characteristics of publication year and location of the interaction, study outcomes did not seem to be significantly influenced by whether participants were college-age students or adults from a non-college sample for any of the four outcome measures. (See results in Table 3). In the case of nonverbal behavior, age of participants was collinear with location of the study (field versus lab). Regarding attitudes toward partner and participants' emotional

state, the number of samples utilizing non-college-student populations was limited. These results should therefore be regarded with caution.

Table 3.

Average Correlations and Tests of Significance for Intersectional Moderator Variables

<u>Attitudes Toward Partner</u>	<u>k</u>	<u>Mean r</u>	<u>95% CI</u>	<u>Q_b or t(df)</u>	<u>Test statistic</u>
Gender Composition of Dyads				Q _b (1, 35)	0.52
MixedSex	11	.11	[.01, .22]		
SameSex	24	.06	[-.04, .16]		
Percentage Female	37	β = .14		Q _b (1, 35)	0.77
Age of participants				t(39)	0.06
College students	39	.06	[-.01, .13]		
Non-college adults	2	.17	[-.07, .40]		
<u>Participants' Emotional State</u>	<u>k</u>	<u>Mean r</u>	<u>95% CI</u>	<u>Q_b or t(df)</u>	<u>Test statistic</u>
Gender Composition of Dyads				Q _b (1, 30)	11.75***
MixedSex	11	.22	[.14, .29]		
SameSex	19	.04	[-.03, .10]		
Percentage Female	32	β = -.07		Q _b (1, 30)	0.14
Age of participants				t(30)	0.88
College students	30	.10	[.04, .16]		
Non-college adults	2	.23	[.02, .41]		
<u>Nonverbal or Observed Behavior</u>	<u>k</u>	<u>Mean r</u>	<u>95% CI</u>	<u>Q_b or t(df)</u>	<u>Test statistic</u>
Gender Composition of Dyads				Q _b (1, 32)	1.36
MixedSex	15	.10	[.03, .18]		
SameSex	17	.02	[-.09, .14]		
Percentage Female	33	β = -.12		Q _b (1, 31)	0.47
Age of participants				t(35)	0.38
College students	31	.10	[.01, .18]		
Non-college adults	6	.07	[.02, .12]		
<u>Performance</u>	<u>k</u>	<u>Mean r</u>	<u>95% CI</u>	<u>Q_b or t(df)</u>	<u>Test statistic</u>
Gender Composition of Dyads				Q _b (1, 50)	<.00
MixedSex	32	.06	[.01, .11]		
SameSex	18	.06	[-.02, .14]		
Percentage Female	45	β = .23		Q _b (1, 43)	3.04 ^a
Age of participants				t(52)	0.29
College students	35	.08	[.01, .15]		
Non-college adults	19	.06	[.01, .11]		

Note. ^a $p \leq .09$, *** $p \leq .001$; k indicates number of samples, Mean r is the point estimate for mean effect size, 95% CI provides lower and upper bounds of the confidence interval for the point estimate, Q_b or $t(df)$ indicates which test was used and the degrees of freedom; Test statistic is the Q_b or t -value, as indicated.

Relational Moderator Analyses

Majority or minority status of participant. To examine the role of racial group status, I divided the set of effect sizes to compare the experiences of racial majority and minority participants, excluding samples that did not report data separately for these groups. Results showed a significant difference in participants' self-reported emotional state. Majority group members indicated less negative affect (e.g., less anxiety) when interacting with same-race partners than with other-race partners; minority group members showed roughly equivalent outcomes regardless of the race of their partner (see Table 4 for results). There were no significant differences between the samples featuring participants from racial majority and minority groups for other outcome measures.

Study personnel versus naïve partners. I examined the effect of using study personnel (confederate partners, experimenters, and research assistants who portrayed stranded motorists and others in need of help) as interaction partners compared to naïve partners (naïve participants, roommates, mentors, and employees). When controlling for the correlated study characteristics of frequency of interaction and sex-of-author, there were no significant differences between these two for any of the outcome variables, indicating that use of study personnel did not systematically result in different outcomes than using naïve partners. (See Table 4.)

Mode of interaction. The data were examined for differences between studies that used face-to-face interactions and those which took place via the internet, video, audio, text, paper, or some alternative form of interaction. No significant differences were found by the form of the interaction, suggesting that when participants believe they are interacting with another person, they behave in similar ways regardless of the medium.

Table 4.

Average Correlations and Tests of Significance for Relational Moderator Variables

<u>Attitudes Toward Partner</u>	<u>k</u>	<u>Mean r</u>	<u>95% CI</u>	<u>Q_b or t(df)</u>	<u>Test statistic</u>
Racial Status of Participant				Q _b (1, 33)	0.02
Minority	6	.06	[-.08, .20]		
Majority	27	.07	[-.02, .17]		
Identity of Partner				t(39)	0.51
Study Personnel	23	.06	[-.03, .15]		
Naïve Partner	18	.07	[-.03, .18]		
Mode of Interaction				Q _b (1, 41)	0.34
Face-to-Face	30	.07	[-.01, .16]		
Other media	11	.04	[-.04, .12]		
<u>Participants' Emotional State</u>	<u>k</u>	<u>Mean r</u>	<u>95% CI</u>	<u>Q_b or t(df)</u>	<u>Test statistic</u>
Racial Status of Participant				Q _b (1, 28)	7.10**
Minority	8	-.03	[-.11, .06]		
Majority	20	.12	[.06, .19]		
Identity of Partner				t(30)	1.75
Study Personnel	18	.11	[.05, .16]		
Naïve Partner	14	.09	[-.02, .19]		
Mode of Interaction				Q _b (1, 32)	0.84
Face-to-Face	24	.11	[.04, .19]		
Other media	8	.07	[-.01, .14]		
<u>Nonverbal or Observed Behavior</u>	<u>k</u>	<u>Mean r</u>	<u>95% CI</u>	<u>Q_b or t(df)</u>	<u>Test statistic</u>
Racial Status of Participant				Q _b (1, 34)	0.64
Minority	5	.02	[-.18, .22]		
Majority	29	.11	[.03, .19]		
Identity of Partner				t(35)	0.49
Study Personnel	28	.11	[.03, .19]		
Naïve Partner	9	.00	[-.10, .10]		

Mode of Interaction				Q_b (1, 37)	0.33
Face-to-Face	32	.08	[.01, .16]		
Other media	5	.12	[.00, .24]		
<u>Performance</u>	<u>k</u>	<u>Mean r</u>	<u>95% CI</u>	<u>Q_b or $t(df)$</u>	<u>Test statistic</u>
Racial Status of Participant				Q_b (1, 52)	<0.00
Minority	13	.07	[-.01, .15]		
Majority	39	.07	[.02, .13]		
Identity of Partner				$t(53)$	0.87
Study Personnel	48	.07	[.03, .12]		
Naïve Partner	7	.05	[-.04, .13]		
Mode of Interaction				Q_b (1, 55)	0.03
Face-to-Face	40	.07	[.02, .12]		
Other media	15	.08	[.00, .16]		

Note. ^a $p \leq .09$, $** p \leq .01$; k indicates number of samples, Mean r is the point estimate

for mean effect size, 95% CI provides lower and upper bounds of the confidence interval

for the point estimate, Q_b or $t(df)$ indicates which test was used and the degrees of

freedom; Test statistic is the Q_b or t -value, as indicated.

Contextual Moderator Analyses

Interaction structure. To examine the role of interaction structure, I divided the samples into two groups: those in which participants completed *structured* tasks, and those in which participants completed more *free-form* tasks. Structured tasks included those where the appropriate behavior was clear and where participants were more likely to focus their attention on the task at hand instead of social concerns. This category was comprised of activities such as solving puzzles, structured discussions with a particular end goal, and helping-behavior tasks. All other tasks were considered more free-form, where social concerns would be more prominent, as in interviews or free interactions. Interaction structure did not moderate outcomes for explicit attitudes toward partner, or nonverbal behavior. Results for participants' emotional state reached only marginal

significance. However, for performance outcomes, there was a smaller difference between interracial dyads and same-race dyads in structured tasks than in free-form interactions (see Table 5). Thus, structured tasks led to performance outcomes that were less sensitive to the race of the partner than free-form interactions.

Interaction structure and gender. I examined whether the percentage of female participants would have a different effect on structured versus free-form interactions using a multiple meta-regression analysis, and found significant results for nonverbal behavior. The meta-regression showed a significant main effect for interaction structure ($Z = -2.46, p = .014$), for percentage of female participants ($Z = -2.56, p = .011$), both qualified by a significant interaction between the two terms ($Z = 3.05, p = .002$). In free-form tasks, as the percentage of female participants increased, the overall effect size decreased, indicating that nonverbal behavior toward other-race partners became more similar to that shown toward same-race partners with the inclusion of more women. Conversely, in structured tasks, as the percentage of female participants increased, the overall effect size also increased, indicating that nonverbal behavior toward other-race partners became more similar to that shown toward same-race partners with the inclusion of more men. (See Figure 2.)

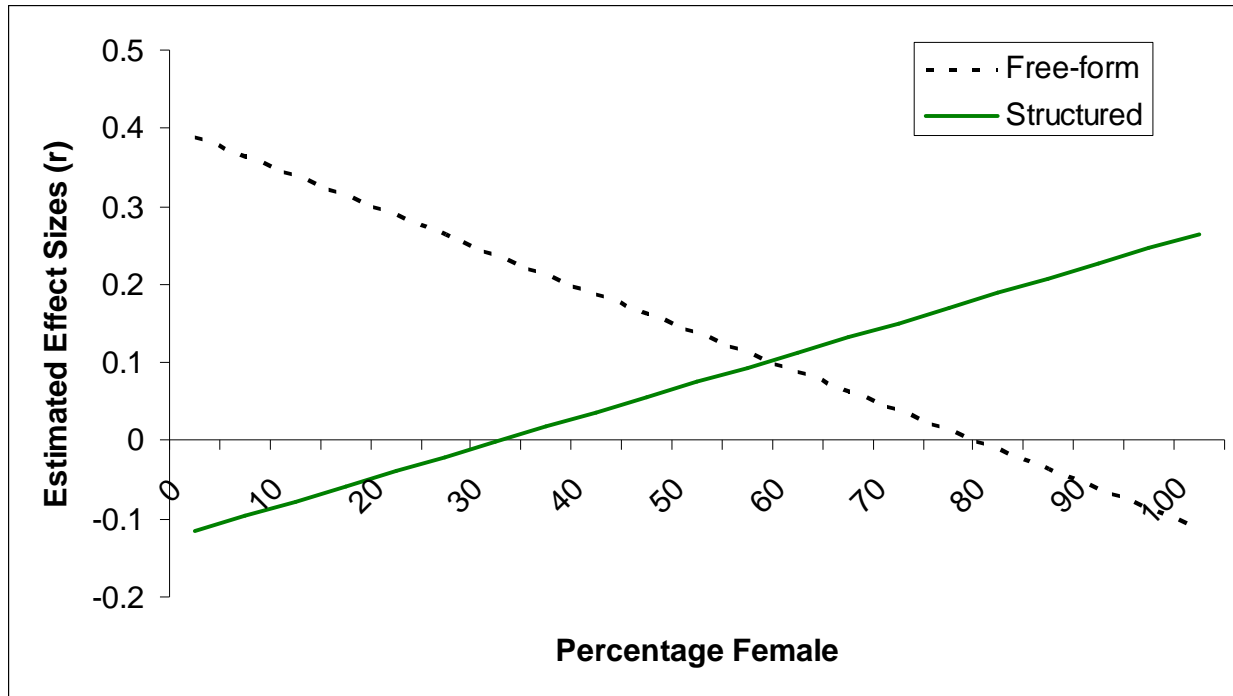


Figure 2. Effects of interaction structure and percentage of female participants on effect sizes for nonverbal friendliness. Higher values indicate bias in favor of same-race dyads, zero values indicate no difference between same-race and interracial dyads, and negative values indicate a bias favoring interracial dyads.

Field versus lab studies. I was interested in determining if outcomes would differ depending on location of the study. After controlling for the correlated study characteristics of participant age, publication year, and frequency of interaction, participants in field studies, compared to lab studies, showed significant differences in reports of their own emotional state. In field studies, participants reported feeling more positively about themselves in same-race compared to interracial interactions; in lab studies, this effect was reduced but did not disappear entirely. Results were marginally significant for explicit attitudes towards partner, such that participants in field studies

tended to show more bias against other-race partners than same-race partners and those in lab studies tended to express more egalitarian attitudes. (See Table 5.) No differences were found for performance measures or for nonverbal behavior.

Frequency of the interaction. When controlling for the correlated study characteristics of study location and use of study personnel, the frequency of the interaction (one-time versus multiple meetings) did not significantly affect attitudes towards partners, nonverbal or observed behavior, or performance. However, the racial composition of the dyad had less influence on participants' ratings of their own emotions over multiple sessions. Whereas participants reported more positive emotional states in same-race dyads compared to interracial dyads after a one-time encounter, this difference was decreased with multiple meetings. Over time, interracial interactions and same-race interactions had comparable effects on participants' emotional state. (See Table 5.)

Salience of race. I examined outcomes for studies where race was made salient by priming participants with concerns about racial bias, having participants discuss race-related topics, or having a confederate-partner mention race in the course of the interaction, compared to studies where race was not made salient to participants. When race was made salient, participants made more positive explicit ratings of other-race partners compared to the same-race partners, whereas same-race partners were rated more favorably than other-race partners when race was not made salient. (See Table 5.) Of the studies which made race salient to participants, only one featured data from racial minority participants in both interracial and same-race interactions, so these effects may not reflect differences in outcomes for minority participants. No differences were found for other measures.

Table 5.

Average Correlations and Tests of Significance for Contextual Moderator Variables

<u>Attitudes Toward Partner</u>	<u>k</u>	<u>Mean r</u>	<u>95% CI</u>	<u>Q_b or t(df)</u>	<u>Test statistic</u>
Interaction Structure				Q _b (1, 41)	1.15
Free-form	26	.09	[.00, .18]		
Structured	15	.02	[-.07, .11]		
Location				t(39)	1.90 ^a
Lab	31	.02	[-.06, .10]		
Field	10	.19	[.09, .29]		
Frequency				t(39)	1.03
One-time	33	.05	[-.04, .13]		
Multiple	8	.15	[.03, .27]		
Salience of Race				Q _b (1, 40)	5.27*
Race Not Salient	36	.08	[.01, .15]		
Race Salient	4	-.10	[-.22, .04]		
<u>Participants' Emotional State</u>	<u>k</u>	<u>Mean r</u>	<u>95% CI</u>	<u>Q_b or t(df)</u>	<u>Test statistic</u>
Interaction Structure				Q _b (1, 32)	2.84
Free-form	21	.14	[.08, .21]		
Structured	11	.04	[-.06, .14]		
Location				t(30)	4.96***
Lab	24	.07	[.01, .13]		
Field	8	.21	[.10, .30]		
Frequency				t(30)	4.47***
One-time	26	.14	[.08, .19]		
Multiple	6	-.06	[-.22, .11]		
Salience of Race				Q _b (1, 32)	0.46
Race Not Salient	25	.11	[.04, .18]		
Race Salient	7	.07	[-.01, .16]		
<u>Nonverbal or Observed Behavior</u>	<u>k</u>	<u>Mean r</u>	<u>95% CI</u>	<u>Q_b or t(df)</u>	<u>Test statistic</u>
Interaction Structure				Q _b (1, 37)	0.2
Free-form	21	.07	[-.04, .18]		
Structured	16	.10	[.02, .19]		
Location				t(35)	0.25
Lab	31	.10	[.01, .18]		
Field	6	.07	[.02, .12]		
Frequency				t(35)	0.39
One-time	35	.09	[.02, .16]		
Multiple	2	-.09	[-.45, .28]		

Saliency of Race					Q_b (1, 37)	0.91
	Race Not Salient	32	.07	[.00, .14]		
	Race Salient	5	.18	[-.03, .38]		
<u>Performance</u>		<u>k</u>	<u>Mean r</u>	<u>95% CI</u>	<u>Q_b or $t(df)$</u>	<u>Test statistic</u>
Interaction Structure					Q_b (1, 55)	5.88*
	Free-form	14	.17	[.08, .26]		
	Structured	41	.04	[.00, .09]		
Location					$t(53)$	0.45
	Lab	30	.09	[.02, .17]		
	Field	25	.06	[.01, .11]		
Frequency					$t(53)$	0.55
	One-time	53	.07	[.03, .11]		
	Multiple	2	.09	[-.13, .30]		
Saliency of Race					Q_b (1, 55)	1.92
	Race Not Salient	46	.05	[.01, .09]		
	Race Salient	8	.18	[.00, .35]		

Note. ^a $p \leq .09$, * $p \leq .05$; *** $p \leq .001$; k indicates number of samples, r is the point estimate for mean effect size calculated using random effects models, 95% CI provides the lower and upper bounds of the confidence interval for the point estimate, Q_b or $t(df)$ indicates which test was used and the degrees of freedom; Test statistic is the Q_b or t -value, as indicated.

Historical trends. To examine trends in effect sizes over the past few decades, I ran a meta-regression analysis comparing publication year with effect sizes. After controlling for correlated factors, results show that attitudes toward other-race partners and same-race partners have converged over the past four decades, $t(39) = 2.48, p = .018$, and nonverbal behavior toward same-race and other-race partners has become more similar as well, $t(35) = 2.32, p = .027$. There has not been a significant change in reports of personal emotional state, $t(30) = 1.09, p = .28$, or measures of performance, $t(53) =$

0.15, $p = .88$. Figure 3 shows expected values of r for each outcome variable across the years.

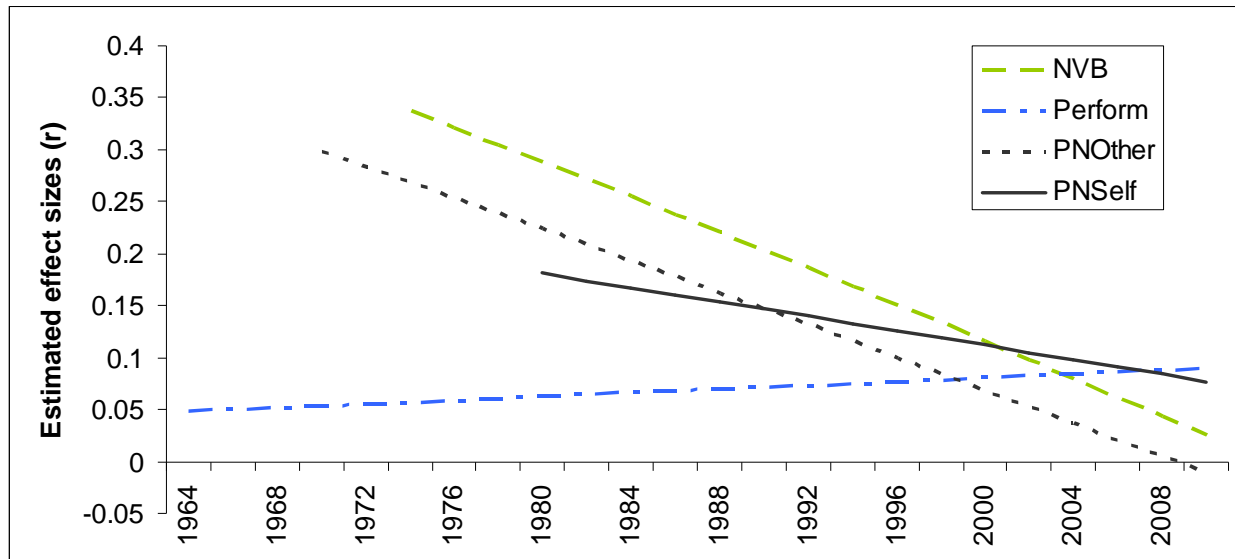


Figure 3. Historical trends in effect sizes. Higher values indicate more same-race bias; lower effect sizes indicate more egalitarian outcomes.

Other Considerations

Cognitive or behavioral performance. Data from studies which used performance measures were separated into two subsets: those which examined cognitive measures of performance (e.g., tests of memory and cognitive depletion) and those which utilized behavioral measures (e.g., helping behavior and cooperation). Although there were too few effect sizes to keep these subsets separate throughout the moderator analyses, when the effect sizes were separated, cognitive performance measures showed slight but significant bias favoring same-race dyads, with a mean $r = .13$, 95% CI [.041, .22], $k = 20$. This effect was significantly different from zero, $Z = 2.84$, $p = .005$. Behavioral performance measures showed no significant same-race bias, with a mean r

=.039, 95% CI [-.010, .088], $k = 32$. This effect was not significantly different from zero, $Z = 1.57$, $p = .12$. This pattern reflects previous findings on behavioral outcomes in the meta-analysis by Saucier and colleagues (2005), as well as the relatively robust findings on cognitive outcomes of interracial compared to same-race interactions (e.g. Richeson & Shelton, 2003). The difference between the two subsets of performance measures approached but did not attain significance, $Q_b(1) = 3.09$, $p = .079$.

Effects of sex/ race of first author. The authors themselves may have an influence on outcomes. For example, meta-analyses of gender research have shown sex-of-author effects on study outcomes (e.g. Eagly & Carli, 1981). To examine whether similar results would be found in the dataset, I coded the sex and race of the first authors of all studies in the dataset, to the extent possible. Race of the first author (majority or minority group member) did not influence outcomes (attitudes toward partner: $Q_b(1,35) = 1.19$, $p = .28$; participants' emotional state: $Q_b(1,30) = 0.004$, $p = .94$; nonverbal behavior: $Q_b(1,33) = 0.24$, $p = .62$; performance: $Q_b(1,46) = 0.46$, $p = .50$). However, sex of the first author, after controlling for the correlated factor of use of study personnel, did affect outcomes for participants' emotional state, $t(30) = 2.31$, $p = .029$, and performance, $t(52) = 2.08$, $p = .042$, but not the other outcome measures (attitudes toward partner: $t(1,39) = 0.27$, $p = .79$; nonverbal behavior: $t(35) = 0.71$, $p = .48$). Female first authors were more likely to report higher effect sizes for performance ($k = 20$, $r = .14$, 95% CI [.08,.20]) than male first authors ($k = 34$, $r = .02$, 95% CI [-.28, .08]), and lower effect sizes for participants' emotional state (female: $k = 19$, $r = .05$, 95% CI [-.03,.13]; male: $k = 13$, $r = .17$, 95% CI [.10, .25]). This could be due to a number of reasons; for example, some of the highest effect sizes for performance outcomes in the dataset come from

studies which used the Stroop (1935) test of cognitive depletion; research on the effects of interracial interaction on cognitive depletion was pioneered by female authors (e.g., Richeson & Shelton, 2003).

Discussion

The results of this meta-analysis indicated significant differences in outcomes for individuals in interracial and same-race settings. Albeit relatively small in magnitude, the results showed that participants reported experiencing less negative affect (especially anxiety), were seen as behaving more warmly, performed better on tasks, and marginally tended to report liking their partners more when they were interacting with a partner of the same race rather than a partner of a different race. Moderator analyses also confirmed the importance of taking an intersectional, relational, and contextual approach to understanding interracial interactions.

Intersectionality. Gender composition of dyads had an effect on participants' emotional state. Namely, interacting with someone of the same gender minimized the difference between interracial and same-race interactions, whereas interracial interactions had more negative consequences when the partner was not of the same gender. Perhaps having a social identity such as gender in common with an interracial interaction partner improves outcomes (Crisp & Hewstone, 2007). Furthermore, although the percentage of female participants did not significantly impact effect sizes when considered alone, this factor did have an effect when considered together with the nature of the task, discussed further below. I did not find any outcome measures that were impacted significantly by the age of participants, although for some measures there were very few samples featuring a non-college-student sample. I hope that future research is able to provide

more information on how other identities such as socio-economic status, sexual orientation, and religious identity may intersect with race to produce unique outcomes. Altogether, these findings highlight the importance of taking an intersectional approach—i.e., considering multiple social identities and the unique characteristics associated with each one—to the study of interpersonal interactions (Cole, 2009).

Relational. Outcomes of interracial interactions are affected by the race of participants. Unlike members of the racial majority, minority group members did not show better emotional outcomes in same-race versus interracial interactions—indicating that the race of the partner did not have as large an effect on minority group members' personal emotional states as it did for majority group members. This may be due in part to more experience with interracial interactions and the development of protective coping mechanisms on the part of minority group members (e.g., Crocker & Major, 1989). Majority group members, on the other hand, may have fewer interracial interactions and thus fewer opportunities to develop approaches and capacities to cope with the stress of these interactions. However, these results should be interpreted with caution. Members of minority groups vary in their sensitivity to race-based rejection (Mendoza-Denton et al., 2002), and the consequences of being reminded of the prejudice or stereotypes that others hold can be serious—e.g., lower academic achievement and retention (e.g., Steele & Aronson, 1995). In examining effects of other relational moderators, there were no significant differences when interaction partners were study personnel versus naïve partners. In addition, no differences were found based on whether the interactions were purely face-to-face or through an audio, video, text, or other limited channel of communication. It seems that knowing the race of the interaction partner, regardless of

their role in the experiment or the mode of communication, is sufficient to affect behavior (Heilman et al., 2010; Pittinsky et al., 2006).

Contextual. When the interaction is clearly structured, performance outcomes between same-race and interracial dyads are more comparable than when the interaction is free-form and unstructured. Structured tasks thus lead to performance outcomes that are less sensitive to the race of the partner than do free-form interactions. This may be due to the decrease in self-presentational concerns that occurs with a more structured interaction (Avery et al., 2009). As a wealth of literature in the field suggests, individuals entering an interaction with a person of a different race may be concerned about how they will be perceived and treated, as influenced both by stereotypes about the other person's group and meta-stereotypes about their own group (Mallett et al., 2008; Shelton & Richeson, 2005; Shelton, Richeson, Salvatore, & Trawalter, 2005; Vorauer, Hunter, Main, & Roy, 2000; Vorauer & Kumhyr, 2001; Vorauer, Main, & O'Connell, 1998). Despite a desire for positive social outcomes, many individuals may take a misguided approach to try to accomplish those goals (Apfelbaum et al., 2008). Providing these individuals with a level of structure can decrease the ambiguity of the situation and thus positively impact performance outcomes. For example, when White individuals received a script to use during an interracial interaction, they showed less cognitive depletion compared to individuals who spoke extemporaneously (Avery et al., 2009; Richeson & Trawalter, 2005). This finding has important implications for diversity in the workplace and beyond, as it suggests that the optimal performance benefits of diversity might be accrued when interactions are structured and task-focused (e.g., Sommers, 2008). In addition, the gender of participants interacts with the structure of the interaction. The

examination of both gender and interaction structure shows that women behave more similarly toward same-race and other-race partners when interactions are free-form, whereas men behave more similarly toward same-race and other-race partners when interactions are structured. This echoes previous research that men and women behave differently in interactions depending on the nature of the task (Dovidio et al., 1988; Eagly & Karau, 1991; Wood, 1987). The second part of this dissertation will explore these findings a bit further.

Longer-term interactions resulted in less distinction between same-race and interracial dyads in terms of participants' emotional states. This may have been because multiple-session studies allowed for participants to individuate their partners and thus rely less on group stereotypes to guide emotional responses (Brewer, 1988; Fiske & Neuberg, 1990). Longer-term studies did not lead to significant improvement in explicit reports of attitudes or nonverbal behavior toward other-race partners relative to same-race partners. Although at first blush this may seem contrary to findings about contact theory (Pettigrew & Tropp, 2006), these results should not be taken as a reflection on the benefits of contact on intergroup relations for two main reasons. First, the vast majority of the studies in the dataset did not provide experimental conditions that met the conditions of contact theory, namely, that the interaction would be clearly and explicitly marked by the presence of common goals, a cooperative environment, equal status of groups, and authority sanction for the contact (Allport, 1954; Pettigrew & Tropp, 2006). Second, I compared attitudes for interracial dyads relative to same-race dyads, rather than solely examining improvement of intergroup relations. The findings may rather suggest that, absent the conditions which promote positive contact, relative attitudes toward

same-race and other-race partners remain consistent over time, although there are benefits for personal emotional state.

Making race salient led to more egalitarian expressions of attitudes toward partners. This suggests that self-presentational concerns, particularly in members of racial majority groups, may lead to altered responses in an attempt to not appear prejudiced when participants are aware that race is an issue (Devine, Plant, Amodio, Harmon-Jones, & Vance, 2002; Goff, Steele, & Davies, 2008; Monteith, Ashburn-Nardo, Voils, & Czopp, 2002). The implications of this finding are broad. For example, research by Sommers and Ellsworth (2000) demonstrated that when race was made salient to White mock jurors, the race of the defendant did not adversely affect their decisions. However, when race was not made salient, White jurors rated the male defendant as more guilty, violent, and aggressive when he was described as Black than when he was described as White. Thus, making race salient can lead to alterations in behavior that are aligned with social norms about race (Sommers & Ellsworth, 2000; 2001). It is worth noting that most of the studies in this meta-analysis which manipulated race salience featured racial majority participants. For racial minorities, an experimental manipulation which makes race salient may reduce anxiety by activating a sense of expertise (Trawalter & Richeson, 2008; Trawalter et al., 2009).

Studies set in realistic field settings had higher effect sizes than lab studies in terms of participants' emotional state and marginally so for measures of explicit attitudes toward partners. Participants in field studies thus reported feeling more negative affect in interracial than same-race interactions, compared to participants in lab studies. As Cialdini (2009) points out, field studies have the benefit of being more applicable to real

world outcomes. The present results suggest that field studies may reveal some amount of bias that may be concealed due to demand characteristics evoked by a laboratory setting—that is, participants are less likely to try to present themselves in a more positive light when no experimenter is present (Reis & Gosling, 2010).

Perhaps one of the most interesting findings from this meta-analysis is the ways in which interracial interactions have, and have not, changed over time. Over a period of four decades, individuals' attitudes towards their partners became increasingly egalitarian. This mirrors observations that explicit attitudes toward people of other races have improved substantially over the past decades, due in part to changing social norms (e.g., Dovidio & Gaertner, 2000; Gaertner & Dovidio, 1986; Sears, 1988). Differences in nonverbal and observed behavior also showed a decline in magnitude over the past 40 years, indicating that implicit and uncontrolled attitudes are improving along with explicit attitudes (although the effect sizes for nonverbal behavior are consistently larger than those for explicit ratings). These larger effect sizes for nonverbal behavior—indicative of a greater bias in favor of same-race partners—suggest that at the deeper, implicit level, overcoming the discomfort of interracial interactions is more of a challenge than it would appear at the explicit level, because nonverbal behavior is difficult to control and can, in fact, subtly perpetuate bias (Weisbuch, Pauker, & Ambady, 2009). However, participants report similar levels of anxiety and positive and negative affect over time, and the effect of partner race on performance outcomes has stayed consistent as well. Anxiety and negative self-directed feelings may be caused by different forces than they were a few decades ago, yet these negative emotions still persist. For example, White people's fear or discomfort may once have been driven by negative stereotypes about racial minorities,

but in more recent years have been combined with or supplanted by concerns about being viewed as racist. Differences in performance outcomes for same-race and interracial dyads have also remained stable, although this finding should be considered in light of the changes in the typical performance measures used across time, with a decline in helping-behavior measures and an increase in cognitive tests.

As noted above, one of the potential limitations of this meta-analysis is the factor of changing measures over time. In particular, performance measures in the 1970s tended to be characterized by helping studies, whereas in the past decade, cognitive depletion measures such as the Stroop (1935) and memory tasks have gained prominence. While all of these tasks represent measures of objective performance, these shifts in methods should be taken into account when interpreting these findings.

Another element to take into consideration is that the majority of the samples (over 70%) were based on the interactions between White and Black individuals in a U.S. setting. Fewer samples examined relationships between White, Asian, Latino, Middle Eastern, and First Nations partners, and only a handful of studies examined interracial interactions across national borders (German and Turkish, Italian and African, Japanese and non-Japanese students). Each one of these interracial pairings is linked to a unique set of historical circumstances and thus will have its own influencing factors. For example, White individuals in America might be more concerned about appearing prejudiced toward Black people and more likely to behave in a way to compensate for that possibility, whereas the fear of being seen as racist may be less of a factor in interactions between members of other groups. Future studies should examine how the processes already identified in the context of White-Black relations in the United States

apply in other intergroup settings. As far as I could find, only one study has directly compared White-Black dyads to White-Asian dyads, and it found that while both evoked more anxiety than same-race interactions, members of White-Asian dyads reported less anxiety than members of White-Black dyads (Littleford et al., 2005). A longitudinal study of roommate groups also demonstrated unique outcomes for individuals who had Asian-American, Latino, Black, or White roommates (van Laar, Levin, Sinclair, & Sidanius, 2005). Because there is so little literature on interactions beyond the Black-White binary, further investigations of other interracial pairings are sorely needed, not only between majority and minority groups, but also between minority group members of different races. Similarly, looking beyond just race and exploring other forms of identity intersectionality, not just in terms of gender and age but including identities such as sexual orientation, socio-economic status, and religion, may also prove a fertile source of new understandings about intergroup relations.

Moreover, there seems to be a need for more ecologically valid studies, including more field studies. Although field studies require more investment and the loss of some experimental control, the behavior they capture may be more reflective of the real world than that observed in the lab, and their findings are more likely to be understood and seen as relevant by a broad audience (see Cialdini, 2009). Likewise, although there were no significant differences in outcomes for studies using naïve partners versus study personnel, the use of naïve partners may provide a unique opportunity to study the dynamics affecting both members of an interaction simultaneously, better reflecting the relational nature of real-world interactions (Shelton & Richeson, 2006b). While study personnel are often given scripted roles and trained to act the same with each participant,

naïve partners are free to engage in behavior that may either counteract or confirm their partner's negative expectations about the interracial interaction (e.g., Mallett et al., 2008; Shelton, Richeson, & Salvatore, 2005).

Finally, both structural variables and gender should be more carefully examined. In terms of structure, how do factors such as the presence of a task, the type of task (collaborative or competitive, for instance), the incentives provided for task performance, and the roles of the individuals in the interaction affect the outcomes of the interaction? The effects of gender composition of interracial dyads also merit further investigation. The results so far are provocative and indicate that outcomes are affected by gender composition and participant gender, the latter particularly in conjunction with structural aspects of the interaction. In the next part, the focus of this dissertation turns to examining race, gender, and interaction structure in the setting of a group. In keeping with the findings here, the approach to this empirical work also examines the roles of intersectionality, relational dynamics, and the influence of context.

PART II: EMPIRICAL RESEARCH

Although many questions arise from the findings of the meta-analysis, nowhere perhaps is the necessity of taking an intersectional, relational, and contextual approach more evident than in the findings about gender and interaction structure. Restated briefly, women's nonverbal behavior toward other-race partners is more similar to that expressed toward same-race partners when the interaction is free-form and unstructured. Men, on the other hand, behave more similarly toward same-race and other-race partners when interactions are structured and social concerns are less dominant. The following set of studies examined the same issues in a group setting. Across three studies, I examined the effects of racial diversity in a group on the perceived social complexity of the interaction structure, and its differing effects on men and women's behavior. Examining these questions in group settings allows an intersectional, relational, and contextual approach to the question: When does diversity benefit a group's members, and who benefits the most?

Earlier examinations of the question of the effect of diversity on group outcomes provided mixed results. Williams and O'Reilly (1998) carried out a review of diversity in groups and organizations, as defined by a range of factors including race, sex, background expertise, age, and tenure in the organization. The results led them to conclude that diversity typically led to challenges in terms of group cohesion and communication, but given the right contextual factors, could improve group performance. Some of those challenges related to racial and gender diversity could be traced to stereotypical expectations of individuals based on their identities. Individuals who are members of groups with a lower social status, such as females or racial minorities, may be stereotyped as less competent, knowledgeable, or intelligent, and in accordance with

these biased expectations, granted less authority and prestige (Carli & Eagly, 1999; Driskell & Mullen, 1990; Ridgeway & Balkwell, 1997).

In relation to gender, there has been a great deal of research on how these different expectations of men and women impact patterns of leadership (Ridgeway & Smith-Lovin, 1999). Men tend to exercise greater influence in mixed-sex groups than do women (Pugh & Wahrman, 1983; Strodbeck & Mann, 1956; Thomas-Hunt & Phillips, 2004). In one study, for example, men were five times more likely to influence others' opinions than were women (Walker, Ilardi, McMahon, & Fennell, 1996). In another study, information introduced by men was up to six times more likely to influence the group decision than the same information introduced by women (Propp, 1995). Speaking time, another measure of behavioral dominance, shows similar results: men talk significantly more than women in social interactions (Leaper & Ayres, 2007; Hall, 2006; Schmid Mast, 2001).

There are, however, important qualifications to this pattern of gender-based behavioral dominance. As noted above, the context of the interaction shapes gender dynamics. In general, men seem to engage in more task-oriented behaviors in group settings, whereas women engage in more social behaviors (Dovidio et al., 1988; Wood & Karten, 1986). Men emerge more often as leaders of initially-leaderless groups performing masculine or gender-neutral tasks, but women are more likely to emerge as leaders when tasks are more interpersonal in nature and contain some element of social complexity (Eagly & Karau, 1991). Thus, as tasks are perceived as more socially complex, women will be more likely to take leadership roles. This suggests that rather than using stereotypically masculine or feminine tasks, another way to increase women's

leadership behaviors would be to highlight social concerns in the context of an interaction. In the current research, I examined this idea that making social concerns salient can shift traditional power dynamics within a group, even when the structure of the interaction itself remains constant.

As demonstrated in the meta-analysis, interracial interactions tend to produce more anxiety than same-race interactions, particularly for members of majority racial groups. In part these effects on personal emotional state may be related to the concerns that White individuals have about appearing prejudiced. I was interested in the possibility that racial diversity in a group would make social concerns more salient, and that this, in turn, would alter a group's gender dynamics so that women engage in more behavioral dominance. Therefore, I hypothesized that in a racially diverse group, the typically-seen gender dynamics will shift, and the gap in behavioral dominance between men and women will close.

To explore these questions, I examined the behavior of White male and female individuals in racially diverse and homogeneous groups, in three studies. For the first study, I examined the behavior and ratings of mock-jury members who deliberated a case in racially diverse or all-White groups. In the second study, video-clips from the first study were viewed by a new group of participants who rated the jury members on confidence and anxiety. I hypothesized that, relative to White men, White women would speak up more and behave more confidently in racially diverse groups than in racially homogeneous groups. In the third study, I explored the roles of race-relevance of topic in conjunction with racial diversity of the group and participant gender to examine the concerns that individuals bring to group interactions.

Study 1

In the first study I examined differences in men and women's behavior in racially homogeneous and diverse groups in the setting of a mock trial. Using a mock jury dataset first analyzed by Sommers (2006), I examined group members' speaking time as a measure of behavioral dominance, and other group members' ratings of persuasiveness as a measure of influence.

Method

Participants. A total of 168 participants (140 White, 28 Black; 102 female, 66 male) were recruited from individuals called for jury duty in Washtenaw County, Michigan, with the cooperation of local judge and jury-pool administrators, or through newspaper advertisements in the same area. Participants ranged in age from 18 to 78, $M = 39.96$ years ($SD = 15.37$), and were reimbursed \$10 per hour for their time.

Procedure. Participants were assigned to groups of six people, randomly selected allowing for the constraints of racial composition. Half the groups had six White members, while the other half of the groups included four White members and two Black members. These groups formed mock juries, and watched a video trial summary about a case of sexual assault with a White female plaintiff and a Black male defendant, and then proceeded to deliberate about the case while seated around a rectangular table so all jury members could see all other members. Deliberation sessions were videotaped and ended either when the jury had come to a unanimous verdict or when 60 minutes had passed. Trained research assistants later created transcripts of the deliberation sessions and calculated how much time, in seconds, each person spoke. In addition to this behavioral

data, all jury members completed a questionnaire after the deliberations providing, among other things, their ratings of the persuasiveness of other jury members (for more details, see Sommers, 2006). Because Black jury members were only present in the racially diverse condition, I focused my analyses on White jury members in order to compare behavior across both all-White and racially-diverse juries.

To ensure that the racially diverse jury would present a more socially complex scenario than the all-White jury, a separate group of 28 White participants (15 females, $M_{\text{age}} = 36.18$, $SD_{\text{age}} = 11.36$) read a brief summary of the method used in this study and were asked to indicate the degree of diplomatic and interpersonal skills they felt they would need in a racially homogenous or diverse jury as specified above. Participants indicated the need for more social skills in the case of the diverse jury ($M = 4.75$, $SD = 0.84$) than the all-White jury ($M = 3.93$, $SD = 1.68$), $F(1, 26) = 10.53$, $p = .003$, confirming the expectation that racial diversity can be a cue to social complexity. There were no differences between respondents by gender, $F(1, 26) = 0.26$, $p = .61$, indicating that both White men and women perceived greater social complexity in the racially diverse setting compared to the all-White setting.

Results and Discussion

Speaking time. I first examined the amount of time that each juror spent speaking. I utilized multi-level models to account for the presence of both group- and individual-level factors. Because participants were clustered into juries, participant scores could not be assumed to be all completely independent of each other; therefore the jury itself was included as a random-effects factor. I included gender (female or male) as an individual-level fixed factor, jury racial composition (diverse or homogeneous) as a

group-level fixed factor, and the interaction of the two terms in the model. The final model was run as a restricted maximum-likelihood mixed model and resulted in non-integer degrees of freedom for the analyses, using the Satterthwaite approximation.

Neither gender nor jury racial composition alone significantly impacted each jury member’s time spent speaking, $F_s < 1, p > .33$. There was, however, a significant interaction of these two variables, $F(1, 118.55) = 6.62, p = .011$ (See Figure 4.) Follow-up analyses showed that in all-White groups, the traditional gender difference was observed, with men ($M = 525.61$ s, $SD = 360.02$) speaking significantly more than women ($M = 375.08$ s, $SD = 324.38$), $F(1, 117.45) = 5.02, p = .027$. However, White female jurors in diverse groups ($M = 590.03$ s, $SD = 399.25$) and White men in diverse groups ($M = 490.40$ s, $SD = 243.21$), were not significantly different in terms of average time spent speaking compared to White men in all-White groups, $F_s < 0.54, p_s > .47$. Thus, the interaction described above resulted largely from White women speaking up more in racially diverse conditions than they did in racially homogenous conditions, while men stayed relatively constant.

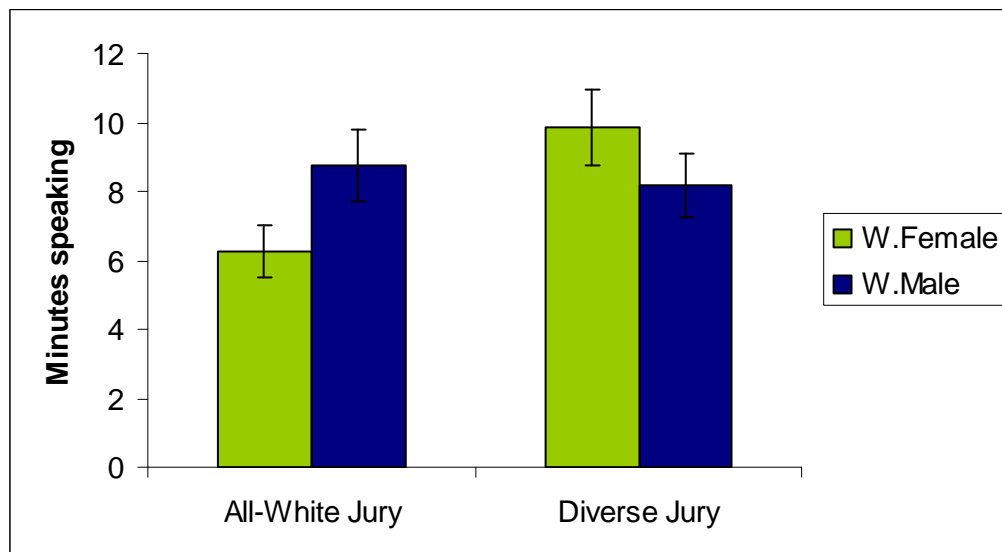


Figure 4. Effects of gender and group racial composition on speaking time. Error bars represent standard errors of the mean.

In a separate analysis looking only at members of the diverse juries, speaking time for White and Black women and men were compared in a multi-level model, using dummy coded variables for each race/gender categorization. My primary question was whether the increases in White women's speaking time came at a cost to the members of racial minorities. Results indicated that there was no difference in speaking time between any of the four categories created through the intersection of race and gender, all $F_s < 1.7$, all $p_s > .20$, and thus in diverse juries, all individuals spent the same amount of time speaking.

Persuasiveness. Each juror rated the other members in their group on the statement "this juror was persuasive." I collapsed across these ratings for each jury member, and ran a MLM analysis for all White jurors using gender (female or male) as an individual-level predictor, jury racial composition (diverse or homogeneous) as a group-level predictor, and an interaction of the two terms (gender x jurytype). The final model resulted in non-integer degrees of freedom for the analyses below.

Results showed marginally significant results for gender, $F(1, 124.44) = 3.67, p = .058$, and no effect of jury racial composition, $F(1, 29.58) = 0.17, p = .68$. As expected, this was qualified by a significant interaction of gender and racial composition of jury, $F(1, 124.44) = 4.85, p = .029$. A follow-up analysis showed that in all-White juries, White women were rated much lower on persuasiveness than White men, receiving average ratings of 5.85 ($SD = 1.20$) compared to 6.59 for men ($SD = 0.88$), $F(1, 124.79) = 10.80$,

$p = .001$. However, in diverse juries, White women were rated 6.34 on persuasiveness ($SD = 1.01$), roughly equal to ratings of White men's persuasiveness in diverse juries ($M = 6.26$, $SD = 0.81$), and not significantly different from the ratings for White men in all-White juries, all F s < 1.04 , all p s $> .31$. Thus, similar to the measure of speaking time, diverse juries led White women to close the gap in persuasiveness with White men. (See Figure 5.) The persuasiveness of jury members was significantly correlated with the amount of time they spent speaking: $r(138) = .22$, $p = .011$. A careful examination of the influence of gender and jury racial composition suggested that this was driven mainly by a highly significant correlation between time speaking and ratings of persuasiveness for White women in racially diverse juries, $r(34) = .58$, $p < .001$. No other groups showed a significant relationship, all r s $< \pm .16$, all p s $> .5$.

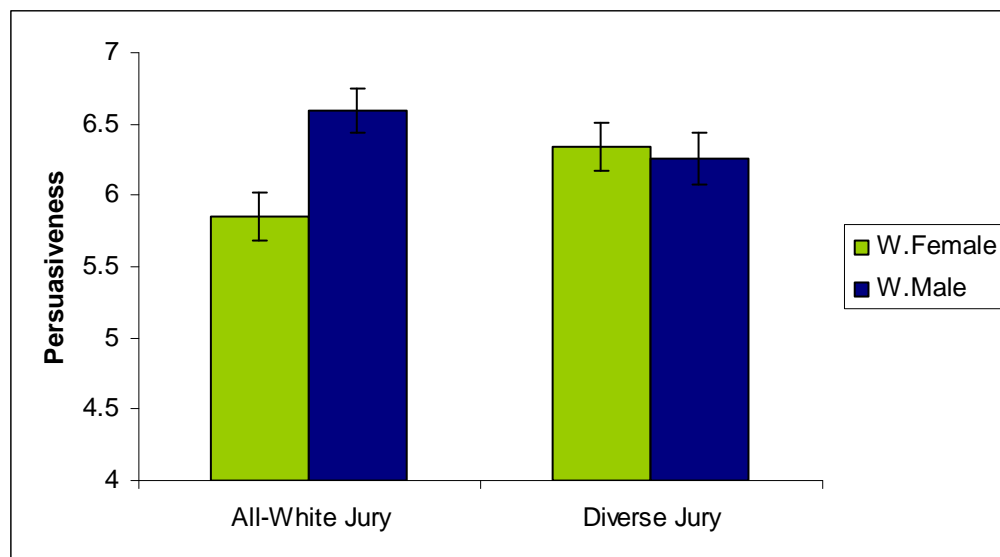


Figure 5. Effects of gender and group racial composition on ratings of persuasiveness.

Error bars represent standard errors of the mean.

In a separate analysis looking only at members of the diverse juries, persuasiveness for White and Black women and men were compared in a multi-level model, using dummy coded variables for each race/gender categorization. Results indicated no difference in ratings of persuasiveness between Black and White men and women, all $F_s < 2.5$, all $p_s > .12$. Therefore like speaking time, the gains for White women did not come at the cost of the persuasiveness of racial minority members of the jury.

In sum, racial diversity in groups had an equalizing effect on women's participation. White women in racially diverse groups spoke more and were rated more persuasive compared to White women in homogeneous groups, effectively closing the gap with men. This gain for White women did not seem to be associated with a loss for Black jury members.

Study 2

To further examine juror behavior, I used thin slices of juror behavior from the first study, by having a new group of participants view edited video-clips and provide ratings on the apparent confidence and anxiety of each juror (Ambady, Bernieri, & Richeson, 2000). As noted above, interracial interactions tend to provoke more anxiety than same-race interactions (Plant & Devine, 2003; Trawalter & Richeson, 2008). Thus, I hypothesized that anxiety ratings for members of diverse juries would be higher than for members of homogeneous juries. However, given that women respond to intergroup anxiety with more engaged behavior (Littleford et al., 2005), I expected that ratings of confidence for women in racially-diverse groups would be higher than those for men in racially-diverse groups. In racially-homogeneous groups I hypothesized that males would

exhibit more confidence than women. In addition, I utilized clips from two different time points in the interaction, to begin to explore some effects of the relational dynamics that occur in group settings.

Method

Participants. Forty-two participants (21 males, 21 females; 30 White American, 6 Asian-American, 4 Latino-American, and 2 Black American) were recruited in exchange for partial course credit or cash. The subjects viewed video-clips of either female or male White jurors.

Materials. Videotapes of the juror deliberations from Study 1 were digitized and edited to produce 5-second clips of White jury members speaking. Only White males and females were selected as targets so that I could compare across homogeneous and diverse jury conditions. Because of the seating arrangements in the original videotapes, only the jurors seated in the middle two seats could be seen clearly, without other jurors obstructing the view. Therefore out of the 28 potential juries and 174 total jury members, I was able to use video-clips for 23 White female targets (nine from diverse juries, 14 from homogeneous juries) and 11 White male targets (five from diverse juries, six from homogeneous juries). To preserve independence, participants were exposed to only one target person from each jury. Using transcripts of the deliberations, I identified the first time and the last time each target person spoke for at least five seconds about the case. I then made video-clips of these segments, using the first five seconds and the last five seconds of uninterrupted contribution to the deliberation. This resulted in 68 video-clips. As a final step, I edited these video segments so that only the target person could be seen

and no other jury members were visible, so participants would remain unaware of the racial composition of the jury for the targets they were viewing.

Procedure. To prevent comparisons across gender of targets, participants viewed either all female or all male clips. Video-clips were presented one at a time in a random order. After each clip, participants responded to the questions “How confident is this person?” and “How anxious is this person?” on a Likert scale with 1 = *not at all* and 7 = *extremely*. The order of the questions was counterbalanced, and no differences were found for question order.

Results and Discussion

I collapsed the data across individual jurors within each racial diversity condition, and thus were left with a 2 (between participants: male jurors v. female jurors) x 2 (within participants: diverse jury v. homogeneous jury) x 2 (within participants: first clips v. last clips) mixed model ANOVA, for each of the three questions.

Confidence. Ratings of juror confidence were examined first. The data showed a main effect of the racial makeup of the jury, $F(1, 40) = 10.10, p = .003$, such that White individuals in racially homogeneous juries ($M = 4.54, SD = 0.62$) appeared more confident than those in racially diverse juries ($M = 4.16, SD = 0.75$). There was also a significant interaction between jury racial make-up and clip timing, $F(1, 40) = 5.92, p = .020$. These were both qualified by a three-way interaction between jury racial make-up, clip timing, and target gender, $F(1,40) = 13.34, p = .001, r = .50$. In racially homogeneous juries, confidence remained steady or increased over time. Participants gave men in all-White juries an average confidence rating of 4.21 ($SD = 0.53$) which rose significantly over the course of the deliberation to 4.71 ($SD = 0.79$), $t(20) = 2.52, p =$

.020. Women in all-White juries did not show a significant increase in confidence from the first time point ($M = 4.31$, $SD = 0.50$) to the second ($M = 4.47$, $SD = 0.44$), $t(20) = 1.17$, $p = .26$. However, in diverse juries the pattern was different. Women in racially diverse juries showed the same pattern of increasing confidence as male members of homogeneous juries, starting at 3.81 ($SD = 0.62$) and rising to 4.17 ($SD = 0.44$), $t(20) = 2.25$, $p = .036$. However, for men in diverse juries, participants rated their video-clips from the first time-point as very confident ($M = 4.60$, $SD = 0.81$) but the later ratings showed a significant decrease in confidence ($M = 4.08$, $SD = 0.45$), $t(20) = 3.88$, $p = .001$. Therefore, for White men in racially diverse mock-juries, participant ratings showed a decrease in confidence over the course of the discussion, whereas White women in racially diverse juries exhibited an increase in confidence similar to that shown by White men in racially homogeneous juries.

Anxiety. Participant ratings of jury member anxiety demonstrated a significant main effect for racial makeup of jury, $F(1, 40) = 4.41$, $p = .042$, $r = .32$. Ratings of anxiety for target individuals in diverse juries were higher ($M = 3.53$, $SD = 0.83$) than those in racially-homogeneous juries ($M = 3.33$, $SD = 0.81$). This finding is consistent with previous studies which show that interracial interactions tend to be anxiety-provoking for White people (e.g. Plant & Devine, 2003; Trawalter & Richeson, 2008). There was also a significant main effect of gender, $F(1,40) = 8.22$, $p = .007$, indicating that females jury members were seen as more anxious than male jury members. Although ratings of anxiety were higher for racially diverse juries than homogeneous juries and higher for women than men, there was no main effect of clip timing nor interactions. Therefore, while White women in diverse juries were anxious throughout the session,

they behaved more confidently over time. White men in diverse juries were less anxious but behaved less confidently over the course of the deliberation.

One potential limitation to this research is that all the mock juries discussed the same topic, a case of cross-racial sexual assault, which has both racial and gender-based implications. However, it is worth noting that despite the potential for race to be discussed, some juries did not address race in their deliberations at all (Sommers, 2006). As for the gender-based relevance, the topic of sexual assault, in and of itself, was not sufficient to give women in the all-White groups more authority and influence, since they spoke less than the men in those groups. Rather, it was only in the racially diverse groups that women engaged in more leadership and group influence behaviors. However, to investigate further the potential unique contributions of race-relevant topics and racially diverse group composition, a third study examined the concerns that each would evoke in White male and female participants.

Study 3

In this study, I designed a hypothetical-group scenario to examine the different influences of racial diversity in a group setting and a race-relevant topic of discussion on White men and women's concerns about the interaction. As noted in the meta-analysis, when race was salient in a dyadic interaction, members of racial majority groups reported more egalitarian attitudes towards partners. This suggests that making race salient can lead to alterations in behavior that are aligned with social norms about race (Sommers & Ellsworth, 2000, 2001). This is perhaps in part due to heightened self-presentational concerns about appearing prejudiced (Goff, Steele, & Davies, 2008). Thus I included

both a race-relevant and control topic in this study, with half of the participants envisioning a racially diverse group and the other half envisioning an all-White group.

Both task concerns and social concerns were included, in line with earlier explorations. However, given that unlike the meta-analysis, this set of studies focused on groups instead of dyads, social concerns were examined in two ways. One set of social concerns was primarily focused on impression management and how the self would appear to others, and similar to the types of concerns that might provoke anxiety in interracial dyads. The second set of social concerns was other-focused, related to the experience and comfort of others in the group. These three categories align with previous small group research about the requirements of group settings and the corresponding member roles that emerged in groups, focusing on task, individualistic, and relationship concerns (Benne & Sheats, 1948).

Method

Participants. Participants were 128 White students at Tufts University (69 females, 59 males), who completed the study in exchange for partial course credit or a chance to win a \$25 cash prize.

Materials and Procedure. The study consisted of a brief survey, which began with instructions to participants to imagine themselves as members of a student task force asked by the university administration to come up with recommendations for the university on a topic. In the race-relevant condition, the topic was reducing racial discrimination on campus. In the control condition the topic was reducing homophobia on campus. These topics were pretested to ensure they were equally controversial by a separate sample of undergraduates ($n = 15$). Underneath this introduction was a picture of

six college-age individuals, identified as the other members of the task force. In the racially homogeneous condition, participants saw three White females and three White males. In the racially diverse condition, the pictures were of two White females, two White males, one Black male, and one Black female.

For the dependent measure, participants were asked how concerned they would be with each of a list of 18 items in the task force meetings. These concerns were of three types: task-related, self-focused concerns, and other-focused social concerns. Task-related concerns were the following: “Avoiding detours into tangential topics,” “Not getting distracted or wasting time,” “Coming up with suggestions that are practical and creative,” “Completing the task efficiently/ in a timely manner,” “Staying focused on the task,” and “Taking the task seriously” ($\alpha = .88$). Social concerns that were self-focused were: “Not coming across as biased or prejudiced,” “Not saying anything stupid,” “Appearing knowledgeable on the topic,” “Appearing level-headed and mature,” “Making a good impression on others,” and “Other group members thinking well of you” ($\alpha = .86$). Social concerns that were other-focused were: “Ensuring that no one has their feelings hurt,” “Not angering other group members,” “Making sure everyone feels comfortable,” “Making sure everyone feels that their point-of-view is heard,” “Promoting a positive and friendly atmosphere,” and “Showing respect for members' unique background and experiences” ($\alpha = .86$). Finally, participants were asked to provide demographic information and thanked for their participation.

Results and Discussion

The data were subjected to a 2 (Topic: race-relevant v. control) x 2 (Group composition: racially diverse v. homogeneous) x 2 (Participant sex: male v. female) x 3

(Type of concern, within participants: task v. social-self v. social-other) ANOVA. Results showed a significant main effect of gender, such that women reported being more concerned overall about the interaction than men, $F(1,120) = 6.45, p = .012$. There was also a main effect of group racial composition: diverse groups generally evoked more concerns than all-White groups, $F(1, 120) = 6.96, p = .009$. There was no main effect for race-relevance of topic ($F(1,120) = 0.18, p = .67$), and a marginal effect for type of concern, $F(2, 240) = 2.97, p = .053$, with average rating of task concerns ($M = 5.25, SD = 1.08$) and self-related social concerns ($M = 5.15, SD = 1.21$) being slightly lower than other-related social concerns ($M = 5.36, SD = 1.18$). Results indicated a significant interaction between type of concern, topic (race-relevant or control) and participant sex, $F(2, 240) = 10.31, p < .001$. Further analyses were performed separately for men and for women. For men, neither the type of concern ($F(2, 114) = 0.32, p = .73$), the topic of discussion ($F(1, 57) = 0.003, p = .96$), nor the interaction of the two factors ($F(2, 114) = 1.73, p = .18$) made a difference in their level of reported concerns. For women, on the other hand, there was a significant main effect for type of concern, $F(2, 134) = 5.93, p = .003$, and no effect for the topic of discussion, $F(1,67) = 0.47, p = .49$, qualified by an interaction with the discussion topic, $F(2, 134) = 13.56, p < .001$. Women discussing a race-relevant topic expressed more self-related concerns ($M = 5.55, SD = 1.01$), $t(37) = 3.02, p = .005$, and other-related concerns ($M = 5.48, SD = 1.34$), $t(37) = 2.41, p = .021$, than task concerns ($M = 5.11, SD = 1.26$); self- and other-related concerns were not significantly different, $t(37) = 0.50, p = .62$. Women discussing a control topic expressed fewer self-related concerns ($M = 5.05, SD = 1.32$) than task concerns ($M = 5.72, SD = 0.82$), $t(30) = 3.39, p = .002$, or other-related concerns ($M = 5.88, SD = 0.85$), $t(30) =$

4.69, $p < .001$; task and other-related concerns were not significantly different, $t(30) = 1.16$, $p = .26$.

This pattern of results indicates that women are more responsive than men to the changes in context, and in particular to the impression-management concerns raised by making the topic of discussion race-relevant. That group diversity affected both men and women in heightening concerns, but race-related topics had more of an effect on women's concerns than men's adds another layer to previous studies about the role of racial salience in interactions. Several studies have found that the prospect of an interracial interaction alone is sufficient to provoke concerns for majority group members, in samples featuring both males and females (Trawalter & Richeson, 2008; Vorauer, Main, & O'Connell, 1998). However, the White male participants in studies by Goff, Steele, and Davies (2008) showed greater self-related social concerns when they were led to believe they would be discussing a race-related, versus race-neutral, topic with Black individuals. It may be that their anticipated-interaction manipulation evoked a stronger response in men than the hypothetical-interaction that I utilized. Furthermore, it is unclear how the same manipulation would have affected women.

Thus, racial diversity leads to different concerns and different outcomes for White men and women. The presence of Black group members triggers a range of concerns for the White participants. White women in particular reported higher levels of concerns about the interaction, and particularly more self-related social concerns and fewer task concerns when the topic was race-relevant, although they were similarly concerned about others in both conditions. White women in diverse groups also demonstrated increased likelihood of leadership behaviors (Eagly & Karau, 1991). These women spoke more and

were perceived by others as more persuasive. Similar to Littleford et al. (2005), where women responded to intergroup anxiety with increasing friendliness towards an outgroup partner whereas men showed less friendliness, White women showed higher anxiety and increasing confidence in diverse groups whereas White men showed a decline in confidence.

General Discussion

Overall, the findings from both the meta-analysis and empirical studies highlight the importance of a contextual, relational, and intersectional approach to understanding race and gender. The meta-analysis provided evidence for significant differences in how individuals respond to interracial settings compared to same-race settings—in terms of explicitly reported attitudes and nonverbal behavior toward partners, self-reported affect, and performance outcomes. However, I also identified a number of moderating factors. For example, mixed-sex interactions exacerbate negative affect in interracial interactions, racial minorities tend to experience less negative affect than majority group members in interracial interactions, and structured interactions lead to performance outcomes that are less affected by dyadic racial composition. Several contextual factors, such as the frequency of study, salience of race, and field versus lab setting, all influence interaction outcomes significantly. Interestingly, the effects of interaction structure on nonverbal behavior depend on participant gender. Furthermore, an examination of historical trends provided the welcome news that not only have explicit ratings of other-race partners improved, but nonverbal behavior toward other-race partners has likewise become more similar to that shown toward same-race partners over the past four decades. However,

affective and performance outcomes have remained largely consistent for individuals in interracial dyads.

Exploring the connection between gender and task structure in relation to race in three empirical studies, racial diversity influenced gender dynamics in mixed-sex groups. In racially homogeneous groups, White women spoke less than White men and were considered less persuasive. They also did not show increases in confidence over the course of deliberations, unlike the men in the same groups. In racially diverse groups completing the same task, however, as social complexity increased, White women spoke as much as men, were considered equally persuasive, and, although more anxious, increased in confidence over the course of the session whereas White men in the same groups decreased in confidence. Finally, in a third study examining a range of potential concerns, White women were more concerned than White men, racially diverse juries elicited more concern than all-White juries, and race-relevant topics had more of an effect on concerns for women.

In terms of intersectionality, these findings highlight how no identity stands alone; rather, there are many ways in which race, gender, class, and other identities influence each other in terms of perception and experience (e.g., Cole, 2009; Goff, Thomas, & Jackson, 2008). To gain a better understanding of how a given social identity affects behavior, researchers must investigate how it may interact with other social identities. These intersections of identities should be taken into account across a wide array of situations including classrooms, work groups, and of course, the legal system. For example, knowing that the racial diversity of a group will impact the male and female members of the group differently has implications for jury selection. Typically, men

exercise more influence on juries than women (Marcus, Lyons, & Guyton, 2000; Strodbeck & Mann, 1956). However, ensuring racial diversity on juries could contribute toward equalizing the influence exerted by all jury members regardless of gender, beyond the more obvious benefits in terms of racial equality and inclusion. Likewise, ensuring gender diversity in juries, teams, and groups seems to allow for more attention to social concerns, particularly in cases where the topic is race-relevant. This research demonstrates that racial diversity can shift individual concerns going into a discussion and gender dynamics within the discussion, thereby indicating the flexible nature of confidence, influence, and status in group settings.

In terms of relational dynamics, the results from the meta-analysis which indicate the differences between racial majority and minority individuals in their emotional responses to interracial interactions, as well as the findings about the identity of the partner and the medium of the interaction, begin to address the importance of examining both sides of a dyadic interaction. The relational dynamics that occurred during group discussions also demonstrated how confidence may shift for White men and women as their initial expectations of the status they would hold within the group did or did not bear out. Future research should, in addition to taking intersectional identities into account, also examine the dynamics of naturalistic interchange and more deliberately reflect the experience of minority as well as majority group members to the extent possible.

Finally, in terms of the importance of context, a number of factors influence outcomes of interracial interactions. These factors may often form part of the background of studies on dyadic interracial interactions or diversity in groups, but may influence outcomes nevertheless. Among other factors, the progress of time alone has seen

dramatic shifts in explicit and implicit prejudice. What will the future hold for race relations? If implicit bias continues to fade as explicit bias has, what will happen to the anxiety and concerns about how we are perceived in interracial interactions which drive personal emotional state? Will social identity threat prove as much of a hindrance to race unity as prejudice itself? In answering this question, we must be able to use a comprehensive approach – to understand the mitigating and complicating factors influencing interracial interactions.

Appendix

Table 1.

Information on samples included in the meta-analysis.

Reference	Study #	Design	Pub status	Age of Ps	Total N	Part race	% Fem	Gender comp	Mode	Lab or Field	Partner ID	Freq	Structure	Race salient	Att r	Emot r	NVB r	Perf r
Amodio (2008)	1	B	P	coll	35	majW	72.0	MS	f2f	L	Exptr	once	0	Y		.42		
Apfelbaum et al. (2008)	1	B	P	coll	101	majW	67.3	MS	f2f	L	ConfP	once	1	N			.26	.19
	2	B	P	coll	47	majW	45.8	MS	f2f	L	ConfP	once	1	N		.20	.00	.28
Avery et al. (2009)	1	B	P	coll	46	majW	100.0	SS	vid	L	ConfP	once	0	N	.00		.19	
	2	B	P	coll	56	majW	67.0	SS	f2f	L	NaiveP	once	0	N			.12	
Babbitt & Sommers (2010)	1	B	U	coll	176	majW	64.8	SS	f2f	L	NaiveP	once	1	Y	-.22	.12	.02	.16
Bair & Steele (2010/2007)	1	B	P	coll	69/72	minB	80.1	SS	vid	L	ConfP	once	0	B	.31			.32
Baron (1979)	1	B	P	coll	64	majW	0.0	SS	other	L	ConfP	once	1	N		.26		
Baxter (1973)	1	B	P	coll	90	majW	100.0	SS	other	L	ConfP	once	1	N	.20			.19
Bickman & Kamzan (1973)	1	B	P	adult	100	majW	100.0	SS	f2f	F	ConfO	once	0	N				.10
Bishop (1979)	1	B	P	coll	63	majW	100.0	SS	f2f	L	ConfP	once	0	N	.27		.00	
Brigham & Richardson (1979)	1	B	P	coll	91	majW	59.3	MS	f2f	F	ConfO	once	0	N				.21
Britt & Crandall (2000)	1	B	P	coll	135	all	50.4	-	txt	L	ConfO	once	1	Y	.00	.00		
Clark (1974)	1	B	P	adult	685	majW	-	MS	aud	F	ConfO	once	0	N				.09

INTERRACIAL INTERACTIONS

Coates (1972)	1	B	P	coll	48	majW	50.0	-	f2f	L	ConfO	once	1	N	.40			
Coleman et al. (1991)	1	B	P	coll	89	minB	73.3	MS	f2f	L	ConfO	once	1	N		.00		
Colliver et al. (2001)	1	M	P	adult	114	minB	-	MS	f2f	F	ConfO	once	1	N			.05	-.05
	1	M	P	adult	1248	majW	-	MS	f2f	F	ConfO	once	1	N			.07	.05
Conley et al. (2010)	1	B	U	coll	61/92	all	66.0	-	f2f	L	NaiveP	once	1	N	-.30		.01	-.07
	2	W	U	coll	21	minB	71.4	MS	f2f	L	ConfP	once	1	N	.09			
Czopp et al. (2006)	2	B	P	coll	187	majW	51.9	-	comp	L	ConfP	once	1	Y	.00	.12		
Danso & Esses (2001)	1	B	P	coll	100	majW	79.0	MS	f2f	L	Exptr	once	1	N				-.28
Dew & Ward (1993)	1	B	P	coll	64	majW	100.0	SS	f2f	L	ConfP	once	0	N	.17			
Dolderman (2003)	1	B	U	coll	62	majW	51.6	MS	f2f	L	ConfP	once	1	N	.00			
	2	B	U	coll	40	majW	-	MS	f2f	L	NaiveP	once	0	N	-.21			
	3	B	U	coll	70	majW	100.0	-	f2f	L	ConfP	once	0	N	-.11			.00
Dovidio & Gaertner (1981)	1	B	P	coll	96	majW	0.0	SS	f2f	L	ConfP	once	1	N	.27			-.24
Dovidio et al. (1997)	3	W	P	coll	33	majW	57.6	MS	f2f	L	ConfP	once	0	N	-.09		.16	
Duronto et al. (2005)	1	M	P	coll	233	majA	50.2	MS	f2f	F	NaiveP	once	0	N		.28		
Dutton & Lake (1973)	1	B	P	coll	80	majW	50.0	MS	f2f	F	ConfO	once	0	Y				-.14
Dutton & Lennox (1974)	1	B	P	coll	50	majW	50.0	MS	f2f	F	ConfO	once	0	Y				-.34
Eastwick et al. (2009)	1	W	P	coll	54	majW	0.0	XS	f2f	L	ConfP	once	1	N	-.04			
Ensher & Murphy (1997)	1	B	P	child	76	minG	58.7	SS	f2f	F	Other	mult	1	N	.13			.23
Feldman & Donohoe (1978)	1	B	P	coll	36	majW	100.0	SS	f2f	L	ConfP	once	1	N				.61
	2	B	P	coll	20	minB	100.0	SS	f2f	L	ConfO	once	1	N				.06

	2	B	P	coll	20	majW	100. 0	SS	f2f	L	ConfO	once	1	N			.49
Franklin (1974)	1	B	P	adul t	89	majW	77.5	MS	aud	F	ConfO	once	0	N			.25
Gaertner (1973)	1	B	P	adul t	457	majW	60.0	MS	aud	F	ConfO	once	0	N			.22
Gaertner & Bickman (1971)	1	B	P	adul t	486	minB	-	MS	aud	F	ConfO	once	0	N			-.07
	1	B	P	adul t	487	majW	-	MS	aud	F	ConfO	once	0	N			.12
Gaertner & Dovidio (1977)	1	B	P	coll	32	majW	100. 0	SS	aud	L	ConfP	once	1	N			-.19
	2	B	P	coll	160	majW	100. 0	SS	aud	L	ConfP	once	1	N			.11
Gonsalkorale et al. (2009)	1	W	P	coll	41	majW	68.9	MS	f2f	L	ConfP	once	0	N	.39		
Grossman (1996)	1	B	U	coll	120	majW	0.0	SS	vid	L	ConfP	once	1	N	-.14		.00
Gudykunst & Shapiro (1996)	1	W	P	coll	165	all	80.0	MS	f2f	F	Other	once	0	N	.31	.36	
	2	W	P	coll	364	all	67.7	MS	f2f	F	Other	once	0	N	.29	.26	
Heider & Skowronski (2007)	1	W	P	coll	140	majW	-	MS	com p	L	ConfP	once	1	N			-.22
	2	W	P	coll	55	majW	-	-	f2f	L	ConfP	once	0	N	.24		.45
Heider & Skowronski (2010)	1	W	U	coll	74	majW	-	-	f2f	L	ConfP	once	1	N			.18
Hofmann et al. (2008)	1	W	P	coll	86	majW	83.7	MS	f2f	L	ConfO	once	0	N			-.04 .09
	2	W	P	coll	77	majW	64.9	MS	f2f	L	ConfO	once	0	N			.01 .18
Holloway et al. (2009)	3a	B	P	coll	63	all	55.6	SS	f2f	L	NaiveP	once	0	N	-.07		-.06
Hosoda et al. (2004)	1	B	P	coll	180	majW	100. 0	XS	f2f	L	ConfP	once	1	N			.26 .04
Katz et al. (1979)	1	B	P	coll	99	majW	0.0	SS	f2f	L	ConfP	once	0	N			.19 -.20
Littleford et al.	1	B	P	coll	123	majW	51.2	SS	f2f	L	NaiveP	once	1	Y			-.06 -.13

(2001/ 2005)

Mallett et al.(2008)	2	B	P	coll	63	majW	49.5	MS	f2f	L	NaiveP	once	0	N	.04	-.03	-.12	
	4	B	P	coll	81	majW	100. 0	SS	f2f	L	ConfP	once	0	N				-.11
Mendes et al. (2008)	1	B	P	coll	60	minB	69.0	SS	aud	L	ConfP	once	1	N	-.03	-.02	.28	.07
	1	B	P	coll	62	majW	69.0	SS	aud	L	ConfP	once	0	N	.17	.12	-.02	-.11
Nier et al. (2001)	2	B	P	coll	184	majW	63.6	SS	f2f	F	NaiveP	once	0	N				-.07
Norton et al. (2010)	1	B	U	coll	44	majW	100. 0	SS	f2f	L	ConfP	once	0	N				-.40
	2	B	U	coll	76	majW	55.3	SS	f2f	L	ConfP	once	0	N	-.55		-.36	-.06
Norton et al. (2006)	2	B	P	coll	30	majW	66.7	MS	f2f	L	ConfP	once	1	N			.22	.39
Page-Gould et al. (2008)	1	B	P	coll	64	minL	72.2	SS	f2f	L	NaiveP	mult	1	N		-.29		
	1	B	P	coll	80	majW	72.2	SS	f2f	L	NaiveP	mult	1	N		-.21		
Raymond & Unger (1972)	2	B	P	adult	207	minB	-	MS	f2f	F	ConfO	once	0	N				.06
	3	B	P	adult	480	majW	-	MS	f2f	F	ConfO	once	0	N				.13
Rice & White (1964)	1	B	P	adult	40	majW	100. 0	SS	aud	L	ConfP	once	1	N				.42
Riches & Foddy (1989)	1	B	P	coll	48	all	100. 0	SS	comp	L	ConfP	once	1	N	.00			
Richeson & Ambady (2001)	1	B	P	coll	95	all	100. 0	SS	aud	L	ConfP	once	0	N	.00			
	1	B	P	coll	48	minB	100. 0	SS	aud	L	ConfP	once	0	N		.00		
	1	B	P	coll	47	majW	100. 0	SS	aud	L	ConfP	once	0	N		.00		
Richeson & Shelton (2003)	1	B	P	coll	50	majW	42.0	MS	f2f	L	Exptr	once	0	Y			.44	.44
Richeson & Trawalter (2005)	1	B	P	coll	60	majW	66.7	-	f2f	L	Exptr	once	0	Y				.39
	2	B	P	coll	32	majW	64.1	-	f2f	L	Exptr	once	0	Y				.44
	3	B	P	coll	68	majW	69.1	-	f2f	L	Exptr	once	0	Y				.26

Richeson et al. (2005)	1	B	P	coll	56	minB	36.7	MS	f2f	L	Exptr	once	0	N			.03
Sanchez-Burks et al. (2009)	1	B	P	adult	45	all	30.0	MS	f2f	F	ConfO	once	0	N	.33	.06	.12
Sasaki & Vorauer (2010)	2	B	P	coll	90	majW	57.0	SS	f2f	L	NaiveP	once	0	N	.25		.00
Sawyer et al. (2010)	1	B	U	coll	57	minL	100.0	SS	f2f	L	ConfO	once	0	Y	.10		.26
Schreer et al. (2009)	1	B	P	adult	33	majW	75.8	MS	f2f	F	ConfO	once	1	N		.35	
Shaffer & Graziano (1980)	1	B	P	adult	33	minB	-	MS	aud	F	ConfO	once	0	N			-.14
	1	B	P	adult	127	majW	-	MS	aud	F	ConfO	once	0	N			-.02
Shelton & Richeson (2006)	2	B	P	coll	64	minG	63.0	SS	f2f	F	Room	mult	0	N	-.13	-.06	
Shelton et al. (2005a)	1	B	P	coll	45	minG	63.0	SS	f2f	F	Room	mult	0	N	-.04	-.15	
Shelton et al. (2005b)	1	B	P	coll	38	majW	60.4	SS	f2f	L	NaiveP	once	0	Y	-.23		
Shibazaki & Brennan (1998)	1	B	P	coll	100	maj	74.0	MS	f2f	F	Other	mult	0	N	.08	.20	
Shook & Fazio (2008)	1	B	P	coll	262	majW	-	SS	f2f	F	Room	mult	0	N	.22		
Sibley et al. (1968)	1	W	P	-	24	majW	50.0	SS	f2f	L	NaiveP	once	1	N			.27
Simpson & Erickson (1983)	1	B	P	adult	16	minB	100.0	MS	f2f	F	Other	mult	1	N			-.05
	1	B	P	adult	16	majW	100.0	MS	f2f	F	Other	mult	1	N			-.14
Stephan & Stephan (1989)	1	B	P	coll	68	majW	0.0	SS	f2f	L	ConfP	once	1	N	.00	.00	
Thayer (1973)	1	B	P	adult	80	minB	50.0	MS	f2f	F	ConfO	once	0	N			.08
	1	B	P	adult	80	majW	50.0	MS	f2f	F	ConfO	once	0	N			-.28
Thomas (1990)	1	M	P	adult	452	all	56.3	MS	f2f	F	Other	mult	1	N	.08		.00

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Towles-Schwen & Fazio (2006)	1	B	P	coll	115	majW	-	SS	f2f	F	Room	mult	0	N	.49			
Townsend et al.(2010)	1	B	U	coll	135	minL	100.0	SS	f2f	L	ConfO	once	0	N	.08	-.21	-.03	
Trail et al. (2009)	1	B	P	coll	68	majW	57.0	SS	f2f	F	Room	mult	0	N	.24	.13		
Trawalter & Richeson (2008)	1	B	P	coll	36	majW	66.0	-	f2f	L	NaiveP	once	0	Y			.41	
Vorauer & Kumhyr (2001)	1	B	P	adult	54	majW	67.9	SS	f2f	L	NaiveP	once	0	N	.33	.13		
Vorauer et al. (1998)	3	B	P	coll	60	majW	56.7	SS	vid	L	NaiveP	once	0	N	.00			
Vorauer & Turpie (2004)	1	B	P	coll	84	majW	52.7	SS	vid	L	ConfP	once	0	N	.00	.22		
Wegner & Crano (1975)	1	B	P	coll	72	minB	50.0	MS	f2f	F	ConfO	once	0	N				.31
	1	B	P	coll	72	majW	50.0	MS	f2f	F	ConfO	once	0	N				.30
Winslow (1998)	1	B	U	coll	80	majW	50.0	MS	f2f	L	ConfP	once	0	Y	.00	.25		
Wispe & Freshley (1971)	1	B	P	adult	88	minB	50.0	MS	f2f	F	ConfO	once	0	N				.02
	1	B	P	adult	88	majW	50.0	MS	f2f	F	ConfO	once	0	N				-.02
Word et al. (1974)	1	W	P	coll	14	majW	0.0	-	f2f	L	ConfO	once	0	N				.61

Note. Design: Study design, B = between participants, W = within participants, M = mixed-model; Publication status: P = published, U = unpublished; Age of Ps: coll = college students, adult = non-college sample of adults; TotalN: total number of participants; Participant race: maj = majority, min = minority, all = all racial groups combined; maj and min followed by letters to signify ancestry: A = Asian, B = African, L = Latin American, W = European, and G = general [minority only]; % Fem: female percentage of participant sample; Gender comp = gender composition: SS = same-sex dyads, XS = cross-sex dyads only, MS = mixed-sex dyads;

Mode: f2f = face-to-face, vid = video, txt = text, aud = audio, int = internet, other = other; Lab or Field: L = lab; F = field; Partner ID: NaiveP = naive partner, Room = roommate, ConfP = confederate-partner, ConfO = confederate-other, Exptr = experimenter, Other; Freq: frequency of interaction, once = one-time, mult = multiple meetings; Struct: 1 = structured task, 0 = free-form task; Race salient: Y = yes, N = no; B = by condition; Effect sizes: Att r = attitudes toward partner, Emot r = participants' emotional state, NVB r = Nonverbal Behavior, Perf r = Performance, with higher r -values scores indicating bias favoring same-race partners, negative scores indicating bias favoring other-race partners, and zero scores indicating no difference in outcomes for interracial or same-race dyads.

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