Bridging Racial Divides:

Social Constructionist (vs. Essentialist) Beliefs Facilitate Trust in Intergroup Contexts

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Abstract

Trust serves as the foundation for social harmony and prosperity, but it is not always easy to build. When people see other groups as different, e.g., members of a different race or ethnicity, the perceived boundary often obstructs people from extending trust. This may result in interracial conflicts. The current research argues that individual differences in the lay theory of race can systematically influence the degree to which people extend trust to a racial outgroup in conflict situations. The lay theory of race refers to the extent to which people believe race is a malleable social construct that can change over time (i.e., social constructionist beliefs) versus a fixed essence that differentiates people into meaningful social categories (i.e., essentialist beliefs). In our three studies, we found evidence that social constructionist (vs. essentialist) beliefs promoted interracial trust in intergroup contexts, and that this effect held regardless of whether the lay theory of race was measured (Studies 1 and 3) or manipulated (Study 2), and whether the conflict was presented in a team conflict scenario (Study 1), social dilemma (Study 2), or a face-to-face dyadic negotiation (Study 3). In addition, results revealed that the lay theory's effect on interracial trust could have critical downstream consequences in conflict, namely cooperation and mutually beneficial negotiation outcomes. The findings together reveal that the lay theory of race can reliably influence interracial trust and presents a promising direction for understanding interracial relations and improving intergroup harmony in society.

Keywords: Lay Theory, Trust, Intergroup, Interracial, Conflict

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Trust, defined as "positive expectations of the intentions or behavior of another" (Rousseau, Sitkin, Burt, & Camerer, 1998), is known to be one of the most crucial ingredients for successful conflict management and social harmony. High trust results in higher relationship reconciliation and satisfaction (Campbell, Simpson, Boldry, & Rubin, 2010; McAllister, 1995), more cooperative groups and organizations (Dirks & Ferrin, 2001; Kramer & Cook, 2007), and even more prosperous nations (Putnam, 1993). Low trust, however, heightens concerns about being exploited, hurting cooperation and conciliatory processes and escalating social conflicts (Lewicki & Bunker, 1996).

Unfortunately, distrust between racial and ethnic groups has prevailed throughout history. Consider recent U.S. history: in 1942, just two months after World War II, distrust of Japanese led to the internment of 120,000 Japanese-Americans, one of the most "shameful" and "flagrant" intergroup transgressions in American history (Foner & Garraty, 1991; Terkel, 2016). More recently, race-based distrust between police and the Black community has also escalated into severe violence. In 2015 alone, police killed more than 100 unarmed Blacks, five times the rate at which police killed unarmed Whites (Mapping Police Violence, 2016), resulting in large-scale anti-police protests, with extremists killing multiple police officers during one of those protests (Ellis & Flores, 2016). Racial issues and distrust of foreigners also colored the 2016 presidential election. During his presidential campaign, President Donald Trump openly expressed his distrust toward Mexicans and stated that he would build a wall along the Mexican border if he won the election (CBC News, 2015). Low trust toward outgroup members is at the heart of these racial divides and tensions.

As with the United States, modern multicultural societies will function more harmoniously with trust across racial groups, but trust tends to be lower in intergroup (vs. intragroup) settings (Brewer, 1979; Brewer & Silver, 1978; Kramer & Carnevale, 2008). Notably, people living in communities with higher racial diversity tend to report lower trust toward each other (Alesina & La Ferrara, 2002; Putnam, 2007). The lack of trust may, over time, result in misunderstanding and misperceptions, escalating interracial conflicts (e.g., Dovidio, Gaertner, & Kawakami, 2002; Fiske, 2002; Kramer & Carnevale, 2008; Terkel, 2016). To promote social harmony and to de-escalate conflicts, it is critical to build interracial trust (Balliet & Van Lange, 2013; Fiske, 2002; R. N. Turner, West, & Christie, 2013). Particularly, more research is needed to uncover the antecedents of interracial trust in heightened conflict settings in which the fear of exploitation and the desire to protect self-interest loom large (Balliet & Van Lange, 2013).

Building on research on lay theories (eg., Hong, Chao, & No, 2009), the current studies examine how individual differences in the lay theory of race can systematically influence the degree to which people extend trust to a racial outgroup in conflict settings. The lay theory of race refers to the beliefs about the fixedness and malleability of racial attributes. These beliefs in fixedness and malleability lie at two ends of a continuum. At the one end, essentialist beliefs refer to the conviction that race reflects an inalterable essence that is indicative of traits and abilities. At the opposite end, social constructionist beliefs about race refer to the conviction that race is a malleable concept, which might be construed differently depending on the social and political situations (Hong et al., 2009). Given that social constructionist (vs. essentialist) beliefs about race tend to be associated with a lower tendency to engage in racial categorization (Chao, Hong, & Chiu, 2013) and a stronger motivation to connect with racial outgroups (Williams &

Eberhardt, 2008), we argue that social constructionist (vs. essentialist) beliefs will help promote

interracial trust in conflict settings and may have important implications for conflict resolution in

intergroup contexts. Past research on the lay theory of race has examined its impact on

intergroup contact and forgiveness (e.g., Halperin, Russell, Trzesniewski, Gross, & Dweck,

2011; Williams & Eberhardt, 2008). Yet, despite recognizing its important role in intergroup

relations, no known study has examined the effect of the lay theory of race on interracial trust in

conflict situations.

In the current research, we tested the hypotheses that social constructionist (vs.

essentialist) beliefs about race are associated with higher trust toward racial outgroups in

intergroup contexts, which may then translate into more positive outcomes in conflict situations.

We will first discuss the role of trust in intergroup contexts, and then we explain how individual

differences in the lay theory of race may influence interracial trust. We will then present three

studies testing the hypotheses across different interracial-ethnic contexts. Finally, we will discuss

the implications of the findings for understanding and improving intergroup relations.

Trust in Intergroup Context

Trust tends to be lower in intergroup contexts, in which group membership is highly

salient (Brewer, 1979; Brewer & Silver, 1978; Kramer & Carnevale, 2008). The group

memberships of individuals provide an important source of social identity (Tajfel & Turner,

1986). Social identity provides individuals with a sense of groupness, accentuating differences

between groups and similarities within groups (Brewer & Brown, 1998; Turner, Oakes, Haslam,

& McGarty, 1994). This categorization process turns the concept of "me" into "us," and

highlights the difference between "us" versus "them." This we-versus-they differentiation

increases the salience of intergroup boundary, setting the ingroup apart from the outgroup.

Individuals are motivated to perceive the self and the group that they identify with in a positive

light (Hewstone, Rubin, & Willis, 2002; Messick & Mackie, 1989). Although ingroup love does

not equate to outgroup hate (Brewer, 1999) and individuals may not actively seek to harm

outgroups (Weisel & Böhm, 2015), people often refrain from extending positive attitudes or

gestures (e.g., helping behavior) toward outgroup members (Weisel & Böhm, 2015). The

tendency to extend positive treatment to the ingroup and withhold positivity from the outgroup is

pervasive (Greenwald & Pettigrew, 2014).

Trust involves extending positive expectations towards another (Rousseau et al., 1998).

In interpersonal contexts, trust towards a person would be low if there is low positivity toward

that person (Johnson-George & Swap, 1982). In intergroup contexts, intergroup bias is prevalent

and positivity toward outgroup members tends to be low (Hewstone et al., 2002). With low

positivity toward an outgroup, all else equal, individuals tend to expect members of the outgroup

(vs. ingroup) to treat them less fairly and less positively (e.g., Foddy, Platow, & Yamagishi,

2009; Platow, Foddy, Yamagishi, Lim, & Chow, 2012). Therefore, trust between (vs. within)

groups tends to be low (Brewer, 1979; Brewer & Silver, 1978). This applies especially when the

group boundary is perceived as impermeable and group membership as immutable (Miller &

Prentice, 1999).

Race and ethnicity are salient attributes that define groups in society (Birnbaum, Deeb,

Segall, Ben-Eliyahu, & Diesendruck, 2010; Deaux, 2006; Gil-White, 2001). Due to its

association with observable distinctions in phenotypes (e.g., skin color), race is often portrayed

as a stable and meaningful social category (or "social kinds"; see Miller & Prentice, 1999; Chao

& Kung, 2015). In fact, race is seen as a more useful category in differentiating people than other

demographic characteristics, such as age, sexuality, and religion (Haslam, Rothschild, & Ernst,

2000; Prentice & Miller, 2007). In neutral and cooperative settings, people reported lower trust

and motivation in forming interracial vs. same-race friendship (e.g., Dovidio et al., 2002;

Shelton, Richeson, & Vorauer, 2006). In competitive contexts, intergroup trust is even lower

(Balliet & Van Lange, 2013; Brewer, 1979) because people tend to assume that the interests of

the different others are in conflict with the interests that one would like to pursue (Thompson &

Hastie, 1990). Such perceived conflicting interests create an additional barrier to interracial trust.

Therefore, individuals tend to trust the outgroup even less and become even more competitive

when conflict occurs. Not surprisingly, low trust in interracial (vs. same-race) settings often

trickles down and results in negative conflict resolution outcomes, such as lack of cooperation

and poor negotiation outcomes (e.g., Adair, Okumura, & Brett, 2001; Cheng et al., 2011;

Matsumoto & Hwang, 2011)

        To promote social prosperity and better intergroup conflict resolution outcomes, we need

to promote interracial trust and better understand the possible antecedents that contribute to

intergroup trust (e.g., Turner et al., 2013). Yet, more research is needed to serve these goals.

Compared to other topics in the intergroup literature (e.g., prejudice), the research on trust is

relatively scarce (Dovidio et al., 2008), and we know little about intrapersonal factors that

influence intergroup trust (Stanley, Sokol-Hessner, Banaji, & Phelps, 2011). Moreover, although

accumulated evidence suggests positive intergroup contact can promote trust (Pettigrew &

Tropp, 2008), its effectiveness may depend on optimal situations (e.g., equal status, cooperative

environment) (Dovidio, Gaertner, & Kawakami, 2003). In suboptimal situations, such as during

an intergroup conflict, the possibility and utility of positive intergroup contact would be

constrained, and more research is needed to explore factors influencing intergroup trust in

heightened conflict situations (Hameiri, Porat, Bar-Tal, Bieler, & Halperin, 2014). Our research

therefore aims to address this gap and contribute to the literature by examining a psychological factor that may influence intergroup trust in conflict situations.

Intergroup research suggests that trust between groups is low because individuals tend to categorize and differentiate the ingroup from the outgroup, and refrain from extending positivity toward those who are seen as members of an outgroup. However, individuals engage in categorization—differentiating one's racial ingroup from outgroups—to varying extents. Specifically, research on the lay theory of race—the study of people's lay assumptions about the nature of race—suggests that there are individual variations in the extent to which people categorize and differentiate members of an ingroup from an outgroup (Hong et al., 2009). We posit that the lay theory of race may contribute to extending or withholding trust in interracial contexts.

Lay Theory of Race

Like amateur scientists, people form lay theories to make sense of the world (Heider, 1958; Kelly, 1955). One common kind of lay theory is people's assumptions about whether certain attributes (e.g., personality, race) are malleable or immutable characteristics.[1] The beliefs in malleability and fixedness are at two opposite ends of a continuum (Dweck, Chiu, & Hong, 1995). Interestingly, individuals can hold both malleability and fixedness beliefs (Dweck et al., 1995).

Both malleable and fixedness beliefs are cognitively available, but they differ in the level of accessibility across individuals and situations (Dweck et al., 1995; Higgins, 1996). Individual

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[1] These theories are sometimes also called implicit theories, implicit beliefs, entitativity, and psychological essentialism (e.g., Bastian & Haslam, 2006; Chao & Kung, 2015; Gelman, Coley, & Gottfried, 1994; Hamilton, Sherman, & Rodgers, 2004; Hong et al., 2009; Medin & Ortony, 1989). There are slight theoretical distinctions between the concepts, but empirically they converge to the same idea that categories possess immutable and meaningful essences to different extents (e.g., Hodson & Skorska, 2014). Please see detailed discussion of the distinctions in these reviews (Hong et al., 2009; Rothbart & Taylor, 1992; Yzerbyt, Judd, & Corneille, 2004).

differences in accessibility of beliefs are jointly influenced by multiple factors (see Haslam, 2017), such as their varying propensity of explaining observed pattern of things (Gelman, 2003; Salomon & Cimpian, 2014), developmental experiences (e.g., Diesendruck, Goldfein-Elbaz, Rhodes, Gelman, & Neumark, 2013), and social structures and cultures people reside in (Kung, Eibach, & Grossmann, 2016). Individuals typically hold one of the two beliefs more strongly than the other, and therefore, lay theories are often measured as individual differences (Dweck, 2011; Dweck, Hong, & Chiu, 1993). Nevertheless, situational cues can make a certain belief temporarily more accessible than the other to influence judgments and behaviors. For instance, when experiencing performance success (vs. failure), individuals are motivated to believe that their abilities are stable (vs. changeable) to boost positive feelings about the self (Leith et al., 2014). In the domain of race, when being exposed to biological arguments about race (Keller, 2005; Williams & Eberhardt, 2008) or when there is a need to justify group differentiation (Kashima et al., 2010), fixedness beliefs tend to become more salient. Most importantly, regardless of whether lay theories are measured as individual characteristics or are manipulated situationally, they exert consistent effects on people's social judgment and behaviors (Gelman, 2003; Hong et al., 2009; Jayaratne et al., 2006; Lee, Wilton, & Kwan, 2014; Medin, 1989; No et al., 2008; Williams & Eberhardt, 2008).

Furthermore, the impact of lay theories tends to be context-specific. This means that lay theories exert effects only when they are applicable to the immediate contexts (Dweck, 2011; Higgins, 1996). For example, the lay theory of intelligence refers to beliefs in the malleability of one's ability to excel. This belief is particularly relevant in achievement settings and has been shown to predict academic outcomes, such as grades and academic motivation (e.g., Robins & Pals, 2002). The lay theory of race refers to beliefs about whether race is a malleable social

construction (i.e., social constructionist beliefs) or a fixed attribute that differentiates people into meaningful social categories (i.e., essentialist beliefs). These beliefs about race influence social perceptions and intergroup attitudes (Chao & Kung, 2015). Therefore, we expect the lay theory of race to play a crucial role in shaping trust in intergroup contexts.

People who endorse social constructionist (vs. essentialist) beliefs about race perceive malleable racial boundaries and tend to be more flexible in encoding racial differences (Hong et al., 2009). For example, compared with those who endorse essentialist beliefs, individuals who endorse social constructionist beliefs tend to remember racially ambiguous faces better (Gaither et al., 2013), and rely less on race-relevant phenotypic information (e.g., skin tone) to categorize targets into groups (Chao et al., 2013). Moreover, their flexibility in encoding racial differences also manifests in the integration of information across different cultural groups as the conception of race and culture tends to be highly conflated (Okazaki & Sue, 1995; Omi, 2001). Specifically, they are more apt to combine ideas from different cultures (Chua, 2013; Tadmor, Hong, Chao, Wiruchnipawan, & Wang, 2012), integrate their experiences of different cultures more efficiently (Chao, Chen, Roisman, & Hong, 2007; No et al., 2008), and perceive more similarities between cultural groups (No et al., 2008). In one study, Asian American and White American participants were asked to rate the personality traits of a typical Asian American and a typical White American. Individuals who endorsed social constructionist (vs. essentialist) beliefs rated their racial ingroup and outgroup to be more similar in personality traits, perceiving racial differences as more arbitrary (No et al., 2008). Overall, social constructionist (vs. essentialist) beliefs about race are associated with less rigid perceptions of racial boundaries.

In addition, in interracial interactions, individuals who endorse social constructionist (vs. essentialist) beliefs are more intrinsically interested in understanding and connecting with others

from a different racial background (Chao, Takeuchi, & Farh, 2016; Yzerbyt, Rocher, &

Schadron, 1997). Specifically, they were more motivated to gain acceptance by racial outgroups

(Verkuyten, 2003; Verkuyten & Brug, 2004). They also found members from other races to be

less distant (e.g., Tawa, 2016), and formed more racially diverse social networks, with greater

interest in discussing sensitive racial issues (e.g., Williams & Eberhardt, 2008). A field study that

examined intergroup relations between various Chinese ethnic groups showed that social

constructionist beliefs were related to higher interest in interacting with ethnic minorities (Gao &

Wan, 2013). Perhaps even more impressive is that, in severe intergroup conflict situations, such

as the Israeli–Palestinian conflict, social constructionist beliefs help break intergroup boundaries.

Such beliefs were associated with more willingness to initiate intergroup contact and resolve

conflict with their counterparts (Halperin et al., 2011; Zagefka, Pehrson, Mole, & Chan, 2010).

The intention of initiating contact may require positive expectations of the intentions and

behaviors of others, suggesting possible connections to increased interracial trust.

The Role of Lay Theory of Race in Interracial Trust and Cooperation

Although race-related lay theories have drawn increasing research interest in the past two

decades (Chao, Kung, & Yao, 2015; Chao et al., 2016; Keller, 2005; Levy, Plaks, Hong, Chiu, &

Dweck, 2001; Levy, West, & Ramirez, 2005; Zagefka, Nigbur, Gonzalez, & Tip, 2013), no

empirical work directly examines whether social constructionist (vs. essentialist) beliefs

influence interracial trust. The current study bridges this gap. We argue that social

constructionist beliefs, relative to essentialist beliefs, can increase trust in intergroup contexts for

two main reasons.

First, individuals who endorse social constructionist (vs. essentialist) beliefs about race

tend to perceive less rigid group boundaries in intergroup contexts. As mentioned above, in

intergroup contexts, individuals' strong sense of groupness can accentuate differences between groups and similarities within groups (Brewer & Brown, 1998; Turner et al., 1994). With salient ingroup-outgroup differentiation, individuals are motivated to favor their ingroup and refrain from extending positive attitudes or gestures toward members of an outgroup (Brewer, 1999; Weisel & Böhm, 2015). Given that social constructionist (vs. essentialist) beliefs are associated with a lower tendency to categorize people into discrete social groups (e.g., Chao et al., 2013; No et al., 2008), individuals endorsing these beliefs would naturally be less susceptible to having the "we" versus "they" differentiation when interacting with an outgroup, leading them to show more positive anticipation toward intergroup interactions (Chao et al., 2016). This process of intergroup de-biasing is evident in intergroup research in which people who endorsed social constructionist (vs. essentialist) beliefs indeed showed less racial prejudice and discrimination against outgroup members (e.g., Jayaratne et al., 2006; Keller, 2005; Leyens et al., 2001). As trust involves holding positive expectations towards others, we propose that social constructionist (vs. essentialist) beliefs would allow people to extend more trust in intergroup interactions.

Second, social constructionist (vs. essentialist) beliefs are associated with stronger motivation to connect with outgroups (Chao et al., 2016; Yzerbyt et al., 1997). This further suggests that the lay theory of race may predict interracial trust. In social relationships, the motivation to connect with other people is highly intertwined with trust, which encompasses positive expectations of the intentions or behavior of another (Rempel, Holmes, & Zanna, 1985; Rousseau et al., 1998). In fact, because the motivation to connect is often built on trust, people set out to connect and to build a relationship with those they perceive to be trustworthy. Given that individuals who endorsed social constructionist (vs. essentialist) beliefs reported greater

willingness to talk to and make friends with outgroup members (e.g., Halperin et al., 2011; Wohl et al., 2015), and that the motivation to interact and to connect with outgroups was associated with intergroup trust (e.g., Turner et al., 2013), we posit that social constructionist beliefs are associated with higher intergroup trust. In turn this may lead to more positive interactions in intergroup contexts.

In sum, we predict that the lay theory of race can influence trust in intergroup contexts. Specifically, relative to essentialist beliefs, social constructionist beliefs can promote trust in intergroup encounters. Studies that examined the lay theory of race have been conducted almost exclusively in an intergroup context. It is unclear whether and how this lay theory might influence dynamics in intragroup settings when there is no clear ingroup-outgroup differentiation. To rule out the possibility that social constructionist (vs. essentialist) beliefs are simply associated with a generalized positivity toward any people regardless of their ingroup-outgroup status, we examined the lay theory effects in intergroup and intragroup contexts across all studies. We do not have specific predictions about the effect of the lay theory of race when individuals interact with their ingroup members. However, we speculate that the effects of the lay theory of race should be context-specific (Dweck, 2011)—the intergroup context activates the lay theory of race, making it temporally more accessible—and would exert influence on trust only in intergroup contexts, in which the sense of groupness is salient, but not in intragroup contexts in which the sense of groupness is not salient. If the effect of the lay theory of race on trust is specific to intergroup settings, we would observe the effect of the lay theory of race on trust in interracial contexts, but not in same-race contexts.

Trust is a crucial catalyst for intergroup cooperation and constructive conflict resolution (Kramer & Carnevale, 2008). Because high trust tends to counteract people's fear of being

exploited in a conflict, people who show high trust are more likely to openly share important information, understand their counterparts, and cooperate in conflicts. In the context of dispute resolution and negotiation, interacting partners who have high trust toward one another therefore tend to achieve more mutually beneficial settlements compared with those who have low trust (e.g., Kong, Dirks, & Ferrin, 2014; Lewicki & Bunker, 1995; Thompson, 1991). Thus, as a downstream consequence, we expect that the effect of social constructionist (vs. essentialist) beliefs on interracial trust would be translated into more positive outcomes (e.g., cooperation, negotiation gains) with racial outgroups in conflict situations.

We examined the hypotheses across different common interracial conflict situations. Study 1 investigated the association between the lay theory of race and interracial (vs. same-race) trust in a team conflict scenario. Study 2 experimentally manipulated the lay theory of race to establish its causal effects in a social dilemma game. In addition, we tested if the effect of the lay theory of race on interracial trust would extend to cooperation as an outcome. Finally, Study 3 extended the relationship between the lay theory of race and interracial trust to a face-to-face negotiation simulation. Participants negotiated with partners of the same versus different racial-ethnic background. Dyadic negotiation gains were used as an outcome measure of the behavioral consequence of interracial trust. We report all measures, manipulations, and exclusions in the studies. These studies were conducted between late 2012 and early 2014. No power analyses were conducted prior to the data collection. We aimed at recruiting around 25 participants per experimental condition (Hogg & Tanis, 2009) and recruited as many participants as possible based on participant availability (e.g., class size). No data analysis was conducted before the data collection was complete. The current research provides a systematic examination of whether the

lay theory of race predicts trust in interracial conflict settings and extends the effect through trust

to conflict outcomes.

Study 1

Study 1 aimed to establish the relationship between the lay theory of race and interracial

trust. We used a common team conflict scenario to test whether social constructionist (vs.

essentialist) beliefs are associated with more interracial trust.

Method

Participants and procedures. This study adopts a between-subject design (Group

Condition: Interracial vs. Same-Race). Sixty Hong Kong Chinese undergraduate business

students (43% male, mean age: 18.85 years, $SD = 0.44$ years) participated in the study to receive

course credit. Participants came to the lab and were told that they would complete two studies

conducted by different researchers. In the first study, they completed a battery of survey

questions, in which the lay theory measures were included. In the second study, the participants

were presented with a conflict scenario in which they were asked to imagine themselves

participating in a case competition. They were randomly assigned to work with students who

were either of the same or different racial backgrounds. Through embedding the lay theory

measures in a battery of survey and presenting the scenario measure as an independent study

conducted by different researchers, we tried to prevent participants from guessing our hypotheses

correctly and minimize demand characteristics, if any. Participants reported their demographic

information at the end of the second study.

Measures.

Lay theories scales. To measure individual differences in the lay theory of race, we used the lay theory of race scale (No et al., 2008).[2] The scale consists of four items, and participants responded to the items on a 6-point scale from 1 (*strongly disagree*) to 6 = (*strongly agree*). The four items are: "To a larger extent, a person's race biologically determines his or her abilities and traits", "Although a person can adapt to different cultures, it is hard if not impossible to change the biological dispositions of a person's race", "How a person is like (e.g., his or her abilities, traits) is deeply ingrained in his or her racial dispositions. It cannot be changed much", and "A person's race is something very basic about them, and it can't be changed much." All items were reversed-coded and averaged to obtain the scale score, such that the higher the score, the stronger the social constructionist (vs. essentialist) beliefs about race ($\alpha = .72$).

To test if the lay theory of race has unique predictive power over other lay theories on interracial trust, we also included two common lay theory scales from other domains as potential control measures. They are the lay theory of personality scale (4 items; $\alpha = .84$; Chiu, Hong, & Dweck, 1997) and the lay theory of intelligence scale (4 items; $\alpha = .94$; Dweck, 2000). Participants responded to the items using the same 6-point scale.

Group condition. In an ostensibly unrelated study, participants read a conflict scenario that took place among members of a case competition team. Case competitions are a common activity for business major students and it is known that team conflict often arises in such contexts. This conflict scenario was used to increase the personal relevance of the scenario to the students. They were asked to imagine themselves in the conflict scenario. To manipulate the group context, participants were randomly assigned to read a scenario that either depicted them

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[2] To investigate whether lay theory of race is a distinct construct, using an independent sample ($n = 173$), we conducted confirmatory factor analyses (CFA) of the lay theory of race scale and measures of some related constructs. In brief, results demonstrated that the lay theory of race scale has both convergent and discriminant validity (see Supplemental Online Materials (SOM) for further details).

working with students who are Hong Kong Chinese (Same-Race Condition) or Filipino

(Interracial condition). We chose Filipino as a racial outgroup target in the study because they

are the largest racial minority group in Hong Kong, and interracial conflicts between the two are

not uncommon (GovHK, 2013). The participants were asked to imagine how they would think

and feel in the conflict situation: "You and the two teammates disagree about how to work on the

project. You know that your idea fits much better with the competition's requirement and

probably can get a higher score than their ideas. However, they insist that your idea is not as

good and not as promising…"

   Trust. After reading the team scenario, participants reported their trust toward their

partners. We created a 3-item trust score based on the case competition scenario ($\alpha = .78$;

adapted from Robinson & Rousseau, 1994). Participants responded on a 7-point scale: (1 =

Strongly disagree, 7 = *Strongly agree*). The items are: "I am not sure I fully trust my

teammates," "I don't think my teammates treat me fairly," and "My teammates are not always

honest and truthful." We reversed and averaged the item scores to form the trust measure.

Results and Discussion

   Descriptives and correlations of variables are shown in Table 1. Lay theory scales were

mean-centered in all analyses across studies. We predicted that the lay theory of race would

influence trust in the interracial context. To test the hypothesis, we conducted multiple regression

analyses and examined the interaction between the lay theory of race and group condition

(interracial vs. same-race). There were no main effects of Group Condition, $B = .28$, $SE = .28$,

$t(56) = 1.00$, $p = .322$, $\eta_p^2 = .02$, 95% CI[-.29, .85], or the lay theory of race, $B = -.21$, $SE = .21$,

$t(56) = -1.01$, $p = .317$, $\eta_p^2 = .02$, 95% CI[-.63, .21]. As predicted, the Theory X Group Condition

interaction was significant, $B = .74$, $SE = .33$, $t(56) = 2.23$, $p = .030$, $\eta_p^2 = .08$, 95% CI[.08, 1.41].

As illustrated in Figure 1, in the Interracial Condition, participants with social constructionist (vs. essentialist) beliefs reported higher trust toward a racial outgroup, $B = .53$, $SE = .23$, $t(25) = 2.32$, $p = .029$, $\eta_p^2 = .18$, 95% CI[.06, 1.00]. This result supports our hypothesis that social constructionist (vs. essentialist) beliefs promote interracial trust. In the Same-Race Condition, however, the lay theory of race did not significantly predict trust, $B = -.21$, $SE = .23$, $t(31) = -.93$, $p = .359$, $\eta_p^2 = .03$, 95% CI[-.68, .25]. This suggested that social constructionist (vs. essentialist) beliefs did not exhibit a generalized tendency to extend (vs. refrain) trust to people in general; their effects on trust are specific to the interracial context.

Additional analyses were conducted to examine whether the lay theory of race has unique predictive validity on interracial trust compared with other lay theories. Both lay theories of personality and intelligence did not significantly interact with Group Condition to predict trust (personality: $B = -.003$, $SE = .35$, $t(56) = -.01$, $p = .992$, $\eta_p^2 < .001$, 95% CI[-.70, .69]; intelligence: $B = .14$, $SE = .29$, $t(56) = .50$, $p = .620$, $\eta_p^2 = .004$, 95% CI[-.43, .71]). Controlling for the other theories did not significantly influence the original pattern of results. The interaction between the lay theory of race and group condition remained significant when controlling for the lay theory of personality $B = .76$, $SE = .34$, $t(55) = 2.20$, $p = .032$, $\eta_p^2 = .08$, 95% CI[.07, 1.45], and when controlling for the lay theory of intelligence, $B = .68$, $SE = .34$, $t(55) = 2.01$, $p = .049$, $\eta_p^2 = .07$, 95% CI[.002, 1.35]. These results suggest that the lay theory of race, but not other lay theories, uniquely influences trust in an interracial conflict situation.

Overall, results support our hypothesis that social constructionist (vs. essentialist) beliefs about race promote interracial trust. Moreover, the effects of lay theories are context-specific (Dweck, 2011), with the lay theory of race, but not other lay theories, influencing trust in an interracial context but not in the same-race context. Though Study 1 provided some supportive

evidence to the hypothesized effect on trust, it is not without limitations. First, Study 1 is a

correlational study; we do not know if the lay theory exerts causal influence on trust. Second,

this study had participants imagining themselves in a conflict scenario. It is unclear whether the

observed effect would be generalizable to real life situations that are personally involving. Study

2 was conducted to address these limitations.

Study 2

Study 2 aimed to replicate the findings in Study 1 and added several improvements in the

design. First, to establish the causal effect of the lay theory of race on interracial trust, we

experimentally manipulated participants' lay theory of race. In addition, Study 2 increased the

psychological realism in the study design (Aronson, Brewer, & Carlsmith, 1985). Instead of

reading a vignette scenario, participants completed an online decision-making task in the lab in

which they thought they were interacting with another real participant. Lastly, Study 2 measured

cooperation in the decision-making task as a behavioral outcome. As trust facilitates cooperation,

we predicted that social constructionist (vs. essentialist) beliefs promote interracial trust, which

in turn would predict greater intergroup cooperation.

Method

Participants and procedures. This study has a 2 (Lay Theory Condition: Social

Constructionist Beliefs vs. Essentialist Beliefs) X 2 (Group Condition: Interracial vs. Same-

Race) between-subject design. Ninety-seven Hong Kong Chinese undergraduate business

students (55% male, mean age: 18.80 years, $SD = .49$ years) participated in the study to receive

course credit. Participants first read a bogus article that manipulated their lay theory of race as

part of a reading comprehension study. Then in an ostensibly unrelated study, they were told to

engage in a decision-making task—a prisoner's dilemma—with a partner in the next room. But

in fact, all participants interacted with the computer showing pre-programmed responses. Afterward, they reported their level of trust toward their partner and provided demographic information.

Measures.

Lay theory of race manipulation. We employed the standard lay theories manipulation paradigm (No et al., 2008; Tadmor, Chao, Hong, & Polzer, 2013; see SOM for full articles). In the first study, participants were randomly assigned to read a bogus scientific news article that either argued racial characteristics as malleable constructions (Social Constructionist Beliefs Condition) or as fixed essence (Essentialist Beliefs Condition). Then as part of the reading comprehension study, participants were asked to summarize the article. They then responded to the same lay theory of race scale we used in Study 1 as a manipulation check ($\alpha = .81$). Comparing participants' lay theory of race revealed that those in Social Constructionist Beliefs Condition ($M = 3.57$, $SD = 1.08$) indeed endorsed social constructionist beliefs more strongly than those in the Essentialist Beliefs Condition ($M = 3.06$, $SD = .93$), $t(95) = 2.41$, $p = .018$, η_p^2 = .06, 95% CI[.09, .91], suggesting that the manipulation was effective. They also rated how difficult it was to understand the article (1 = *Not at all* to 7 = *Extremely*), and how they felt about the tone of the article (1 = *Extremely pessimistic* to 7 = *Extremely optimistic*). As in previous studies (e.g., Chao et al., 2013), the two articles did not differ in their level of reading difficulty, $t(95) = -.42$, $p = .678$, $\eta_p^2 = .002$, 95% CI[-.52, .34]; however, the tone of the social constructionist (vs. essentialist) belief article was rated as significantly more optimistic, $t(95) =$

3.56, $p = .001$, $\eta_p^2 = .12$. Therefore, we controlled for tone in all subsequent analyses to avoid a

potential confound of optimism when estimating the lay theory effect.[3]

Group condition. In the second study, participants were told that they would complete

an interactive online game with a participant in another room, but in fact, all participants were

interacting with pre-programmed computer responses. Before starting the game, participants

were asked to complete a brief personal profile and provide some general information about

themselves. To increase engagement, they were told that the profiles between the interaction

partners would be exchanged. After completing their own profile, participants were presented

with the demographic profile of their interaction partner. They were asked to form an impression

of their partner. The profile included information about age, gender, racial background, and

program of study. As in Study 1, we manipulated the Group Condition by varying the racial

background of the bogus partner in the profile. The partner was either a Hong Kong Chinese

(Same-Race Condition) or a Filipino (Interracial Condition).

Cooperation in Prisoners' Dilemma Game. Participants were told that they would play

a five-round decision-making game with their partner. The goal was to earn as many individual

points as possible. In each round, participants could choose to cooperate or to defect. We used

the traditional structure of payoffs—in each round participants received the highest points if they

chose to defect while the partner chose to cooperate, followed by both cooperating, and then both

defecting (Axelrod & Hamilton, 1981). The bogus partner always chose to cooperate. This setup

is critical because it allows us to experimentally control for the motivation of the partner (i.e., to

cooperate) and observe the reaction of the participants when their partner appeared to show good

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[3] The tone of the article also did not interact with the Group Condition, $B = -.03$, $SE = .19$, $t(93) = -.16$, $p = .870$, η_p^2 < .001, 95% CI[-.42, .35], nor the Lay Theory Condition, $B = .09$, $SE = .25$, $t(93) = .36$, $p = .720$, $\eta_p^2 = .001$, 95% CI[-.40, .58], and with or without controlling for the tone of the article yielded similar patterns of results (see also footnote 4).

will by making cooperative moves consistently. For the participants, choosing to defect would

maximize personal points, whereas choosing to cooperate would lead to the best outcome for

both parties. Therefore, participants' choices provided a behavioral measure of cooperation

(Axelrod & Hamilton, 1981). We calculated the frequency (from 0 to 5) that a participant chose

to cooperate as the indicator of (interracial vs. same-race) cooperation.

    Trust. After completing the prisoners' dilemma game, participants were asked to

indicate their level of trust towards their partner. We expanded the trust scale from Study 1 to

seven items and changed the target of trust from teammate to partner ($\alpha = .79$), for example: "I

am not sure I fully trust my partner. (reversed)" (1 = *Strongly disagree*, 7 = *Strongly agree*) (see

all items in SOM). We averaged the item scores to form the trust score.

Results and Discussion

    Table 2 shows the descriptives and correlations of the variables in this study. As in the

previous study, our main hypothesis was that the lay theory of race would influence trust in the

intergroup context, such that social constructionist (vs. essentialist) beliefs promote interracial

trust. To test the hypothesis, we conducted a 2-way between-subject analysis of covariance

(ANCOVA). We tested the interaction between Theory Condition (Social Constructionist Beliefs

vs. Essentialist Beliefs) and Group Condition (Interracial vs. Same-Race) on trust, controlling for

the tone of the article. There were no main effects of Theory Condition, $B = -.23$, $SE = .23$, $t(92)$

$= -.99$, $p = .323$, $\eta_p^2 = .01$, 95% CI[-.68, .23], or Group Condition, $B = -.27$, $SE = .23$, $t(92) = -$

1.21, $p = .230$, $\eta_p^2 = .02$, 95% CI[-.72, .18]. However, as predicted, the Theory Condition X

Group Condition interaction was significant, $B = .67$, $SE = .31$, $t(92) = 2.13$, $p = .036$, $\eta_p^2 = .05$,

95% CI[.05, 1.29].[4] As seen in Figure 2, in the Interracial Condition, participants in the Social

Constructionist Beliefs Condition (vs. Essentialist Beliefs Condition) tended to report more trust

toward their partner, but the difference was only marginally significant, $B = .47$, $SE = .25$, $t(43) =$

1.87, $p = .069$, $\eta_p^2 = .08$, 95% CI[-.04, .97]. This result provided some support to our hypothesis

that, relative to essentialist beliefs, social constructionist beliefs promote intergroup trust. In

Same-Race Condition, however, Theory Condition did not significantly predict trust, $B = -.29$,

$SE = .22$, $t(48) = -1.32$, $p = .193$, $\eta_p^2 = .04$, 95% CI[-.72, .15]. This result suggested that the

effect of the lay theory of race was unique to the interracial (vs. same-race) context.

     As trust was measured after the prisoner's dilemma game was completed, it is possible

that the cooperation outcome might have influenced trust and overshadowed the lay theory

effects observed above. To rule out this possibility, we conducted an additional, more stringent,

test to examine the Theory Condition X Group Condition interaction effect on trust controlling

for the cooperation outcome. Results showed that the interaction effect remained significant and

yielded similar pattern of results, $B = .76$, $SE = .30$, $t(91) = 2.57$, $p = .012$, $\eta_p^2 = .07$, 95% CI[.17,

1.35]. This suggested that the lay theory effect on trust was independent of the cooperation

outcome. We also explored whether Theory Condition and Group Condition exerted direct

effects on cooperation. There were no main effects of Theory Condition, $B = .47$, $SE = .56$, $t(92)$

$= .85$, $p = .398$, $\eta_p^2 = .01$, 95% CI[-.63, 1.58], or Group Condition, $B = .54$, $SE = .55$, $t(92) = .98$,

$p = .328$, $\eta_p^2 = .01$, 95% CI[-.55, 1.63]. The Theory Condition X Group Condition interaction

was also not significant, $B = -.62$, $SE = .76$, $t(92) = -.81$, $p = .419$, $\eta_p^2 = .01$, 95% CI[-2.1, .90].

These results suggested that Theory Condition predicted neither cooperation in general or

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[4] Not including tone in the model yielded an insignificant trend of the interaction, $B = .50$, $SE = .32$, $t(93) = 1.59$, p $= .115$, $\eta_p^2 = .03$, 95% CI[-.12, 1.13], yet the pattern of results remained similar. In the Interracial Condition, participants in the Social Constructionist Beliefs Condition (vs. Essentialist Beliefs Condition) reported more trust toward their partner, $B = .51$, $SE = .25$, $t(44) = 2.06$, $p = .045$, $\eta_p^2 = .09$, 95% CI[.01, 1.00].

specifically in the interracial context. Although lay theory of race did not show a direct effect on interracial cooperation, it is possible that lay theory could still affect interracial cooperation *indirectly* through its influence on interracial trust (see Hayes, 2009, 2013). We examined this indirect effect next.

       Trust as a mediator. We investigated whether the effect of the lay theory of race on intergroup trust would extend to intergroup cooperation. Because trust increases cooperation (e.g., Kramer & Carnevale, 2008), we predicted that the lay theory of race interacted with group context to exert an indirect effect on interracial cooperation through increased trust. As the lay theory of race effect on trust was specific to the interracial context, the indirect effect was expected to be a function of Group Condition (see Figure 3). To test this conditional indirect effect of lay theory of race, we followed the standard moderated mediation procedure with 10,000 bootstrap samples (Preacher, Rucker, & Hayes, 2007). Analyses included the test of interaction between Theory Condition and Group Condition (same as the ANOVA analyses above), and a mediation test for the effect of the Theory Condition on cooperation through trust, at the two levels of Group Condition. As indicated in Figure 3, the indirect effect of Theory Condition on cooperation was significant in the Interracial Condition, $B = .38$, $SE = .26$, 95% CI[.01, 1.04]; but not in the Same-Race Condition, $B = -.20$, $SE = .19$, 95% CI[-.66, .09]. The test of equality comparing the two conditional indirect effects (Hayes, 2015) revealed that the effects were significantly different from each other, $B = .58$, $SE = .34$, 95% CI[.08, .1.36]. Again, to rule out the alternative possibility that it was the cooperation outcome that influenced trust, we switched the order of trust and cooperation in a follow-up analysis, such that cooperation was entered as a mediator and trust was treated as the outcome. In this analysis, the indirect effects on trust through cooperation were not significant both in the Interracial Condition, $B = -.02$, SE

= .08, 95% CI[-.17, .13], and in the Same-Race Condition, B = .07, SE = .08, 95% CI[-.09, .25],

suggesting that lay theory of race is likely to have a more immediate effect on trust than on

cooperation.

In sum, Study 2 conceptually replicated our major finding that social constructionist (vs.

essentialist) beliefs promote interracial trust. Moreover, using an in-lab behavioral decision-

making task, this study extended the effect of the lay theory of race and showed that intergroup

trust could have an important downstream effect on interracial cooperation. Further, by

manipulating the lay theory of race, this study suggests that social constructionist (vs.

essentialist) beliefs may contribute to increased intergroup trust. But Study 2 also has limitations.

One is that the study did not have a large sample size. In addition, because the decision-making

task was conducted online, we do not know if the effects would hold during face-to-face conflict

reconciliation. Therefore, we conducted Study 3 and tested our hypothesis in face-to-face dyadic

negotiation simulations.

Study 3

Study 3 aimed to replicate the results in a two-party face-to-face interracial versus same-

race dyadic negotiation. Negotiation is a common conflict resolution process in intergroup

conflict and global business. Its outcomes have tremendous implications for intergroup and

international relations (Kramer & Carnevale, 2008; Lee, 2005; Moore & Woodrow, 2010). In

negotiation, dyad trust—trust toward partner within a dyad—is a precursor to mutually beneficial

settlements, also called joint gains (Gunia, Brett, Nandkeolyar, & Kamdar, 2011; Kong et al.,

2014; Lewicki & Bunker, 1995). As such, we were interested in examining whether the positive

effect of social constructionist (vs. essentialist) beliefs on interracial trust can be observed in the

conflicting dyad as a whole. In this study, we conducted dyad-level analysis to examine how

dyads' lay theory of race and interracial trust influenced negotiation joint gains as consequences. We predicted that negotiation dyads with stronger social constructionist (vs. essentialist) beliefs would have more dyadic trust in interracial negotiation, and that this dyad-level interracial trust would in turn lead to better negotiation joint gains. We had no a priori prediction of the individual-level variables (e.g., individuals' negotiation gain). However, for potential interest, in addition to our dyad-level analyses we have conducted supplementary analyses on the individual-level outcomes using a multi-level method, Actor-Partner Interdependence Model (Kenny, Kashy, & Cook, 2006). Different levels of analyses revealed converging findings (Please refer to the SOM for details).

Method

   Participants and procedures. As in Study 1, this study has a between-subject design (Group Condition: Inter-racial/ethnic vs. Same-Race). With our goal of having a higher power test, we recruited two hundred and thirty undergraduate students from two universities in Hong Kong (39% male, mean age: 19.20, *SD* = 1.10). Participants received course credit for their participation. To create a diverse sample, we recruited both local Hong Kong Chinese and international students (69% Asians, e.g. Korean and Singaporean; 31% Whites, e.g., Americans and Australians). In an independent survey conducted a few weeks prior to the negotiation simulation, participants completed the lay theory of race measure (same as Study 1; α = .70) and demographic information. The participants then engaged in a negotiation simulation with a partner either from the same or different racial-ethnic background. After the negotiation, participants reported their level of trust toward their partner, and we calculated negotiation joint gains. Because twenty-three participants did not fill out the mass survey and two participants did

not fill out the post-negotiation measures, we excluded those dyads, resulting in a final sample of

ninety dyads (*n* = 180) for the analysis.

Measures.

Group condition. Participants negotiated with a partner who was either from the same

racial-ethnic background (i.e., Same-Race Condition) or from a different racial-ethnic

background (i.e., Inter-racial/ethnic Condition). Specifically, there were 47 same-race dyads (all

Hong Kong Chinese-Hong Kong Chinese dyads) and 43 inter-racial/ethnic dyads (37 Hong Kong

Chinese-Other Asian dyads, 17 Hong Kong Chinese-Caucasian dyads).

Negotiation simulation. Participants had 60 minutes to complete a two-party face-to-face

Lucky and Synergy negotiation simulation, which was adapted from the merger case used by

Conlon, Moon, Yee, & Ng (2002). Resembling a merger negotiation, participants played a role

as the representative of their firm (Lucky Enterprises or Synergy Limited). Their task was to

come up with a merger plan so that the two companies can work together efficiently. The plan

involved settling four issues. For each issue, there were five options with varying amounts of

points. A better option would carry a higher amount of points. In other words, for each issue, the

participants should try to settle on an option that gives them the maximum amount of points.

The amount of points for each option varied across the two parties. Participants received

the information about the issues and their option payoffs in an information package that was

specific and confidential to the party they represented. Across the four negotiable issues, one was

a common interest to the two negotiation parties (training center location), one was a distributive

issue in which the parties have opposite interests (salary for new hires), and the remaining two

issues were integrative issues that allowed a trade-off (i.e., while health insurance coverage was

a more crucial issue for *Lucky*, vacation coverage was more important for *Synergy*). With the

integrative issues, negotiators could "create value" if they traded off the issue of lower

importance to them in exchange for an issue of higher importance. Joint gain was calculated as

the sum of points the negotiators obtained within the dyad, which ranged from the value of 3000

to 14800.[5]

   Trust.   Immediately after the negotiation (before the participants learned about their

outcomes relative to those of their partners), participants reported their level of trust toward the

partner during the negotiation. They indicated the extent to which their partner was

"trustworthy", "honest", and "sincere" during the negotiation (Fiske et al., 2002; Fiske, Cuddy,

& Glick, 2007) on a 7-point scale (1 = *Not at all*, 7 = *Extremely*) (α = .90).[6] We averaged the

trust scores of the two negotiators in a dyad as the dyad trust score.

Results and Discussion

   Descriptives and correlations of variables are shown in Table 3. We predicted that

negotiation dyads with stronger social constructionist (vs. essentialist) beliefs would have more

dyad trust in interracial negotiation. Because all independent and dependent variables in our

hypotheses are at the same (dyad) level, we conducted dyadic analyses using multiple

regressions (see Adair et al., 2001). There were no main effects of Group Condition, B = .02, *SE*

= .15, $t(86)$ = .11, p = .912, η_p^2 < .001, 95% CI [-.29, .32], and the lay theory of race, B = -.14,

SE = .17, $t(86)$ = -.86, p = .394, η_p^2 = .01, 95% CI [-.48, .19]. As predicted, the Theory X Group

Condition interaction on dyad trust was significant, B = .65, *SE* = .23, $t(86)$ = 2.77, p = .007, η_p^2

= .08, 95% CI [.18, 1.11]. As illustrated in Figure 4, in intergroup negotiation, negotiation dyads

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[5] Dyads that were unable to reach an agreement on all four issues within the allotted time were assigned the same
number of minimal points (i.e., 3000) specified in the scenario.

[6] We used these three adjectives (trustworthy, honest, sincere) as items of trust for two major reasons: they signal the
meaning of trustworthiness and they have been used as trust items in past literature (Chen, Jing, & Lee, 2014; Swan,
Bowers, & Richardson, 1999). However, we draw caution of this measure because these adjectives could overlap
with and may capture variance of the perception of integrity and warmth more broadly (see Cuddy, Fiske, & Glick,
2008).

with social constructionist (vs. essentialist) beliefs reported higher trust, $B = .50$, $SE = .18$, $t(41)$

$= 2.79$, $p = .008$, $\eta_p^2 = .16$, 95% CI[.14, .87]. This again supports our main hypothesis that social

constructionist beliefs promote interracial trust. In same-race negotiation, the lay theory of race

did not predict trust, $B = -.14$, $SE = .15$, $t(45) = -.95$, $p = .346$, $\eta_p^2 = .02$, 95% CI[-.45, .16].

Controlling for differences in the lay theory of race between negotiators in the dyad did not

significantly affect the predicted patterns of results (see Table S3 in SOM). As in Study 2, we

also conducted an additional analysis to examine the predicted interaction effect on trust

controlling the effect of the negotiation joint gains as trust was measured after the negotiation

was completed. The interaction effect remained significant and yielded similar pattern of results,

$B = .56$, $SE = .22$, $t(85) = 2.49$, $p = .015$, $\eta_p^2 = .07$, 95% CI[.11, 1.01]. Consistent with Study 2,

these results suggested that the lay theory effect on interracial trust was independent of the

negotiation outcome.

We also explored the possibility of an interaction effect between the lay theory of race

and Group Condition on negotiation joint gains. There were no main effects of Theory, $B = -$

99.81, $SE = 588.80$, $t(86) = -.17$, $p = .866$, $\eta_p^2 < .001$, 95% CI [-1270.31, 1070.69], or Group

Condition, $B = -225.21$, $SE = 539.97$, $t(86) = -.42$, $p = .678$, $\eta_p^2 = .002$, 95% CI [-1298.63,

848.22]. The Theory X Group Condition interaction was also not significant, $B = 950.76$, $SE =$

825.73, $t(86) = 1.15$, $p = .253$, $\eta_p^2 = .02$, 95% CI [-690.74, 2592.26]. These results suggest that

lay theory neither directly predicted joint gains in general nor specifically in the interracial

context. However, as discussed in Study 2, the lack of direct effect on negotiation joint gains

does not eliminate the possibility that the lay theory could affect interracial negotiation gain

indirectly through its influence on interracial trust. We examine this potential indirect effect in

the next section.

Dyadic trust as a mediator. We investigated whether the effect of the lay theory of race on interracial trust would lead to better negotiation joint gains. We used the same bootstrapping method of mediation from Study 2 to assess the indirect effects of the lay theory of race on joint gains through trust. We also expected that the indirect effect was conditional on Group Condition. As seen in Figure 5, the indirect effect of the lay theory of race on negotiation joint gains via dyadic trust was significant in interracial negotiation, $B = 575.91$, $SE = 331.05$, 95% CI[106.90, 1487.55], but not in same-race negotiation, $B = -163.29$, $SE = 161.66$, 95% CI[-594.88, 73.62]. The test of equality comparing the two conditional indirect effects (Hayes, 2015) revealed that the effects were significantly different from each other, $B = 739.20$, $SE = 393.09$, 95% CI[166.53, 1826.73], which demonstrated that the indirect effect of the lay theory of race on joint gains was unique to the interracial context. Such effect was not found in same-race context. Again, to rule out the alternative possibility that it was the negotiation outcome that influenced trust, we switched the order of trust and negotiation gains in a follow-up analysis, such that negotiation outcome was entered as a mediator and trust was treated as the dependent measure. In this analysis, the indirect effects on trust through negotiation gains were not significant in interracial, $B = .08$, $SE = .08$, 95% CI[-.03, .32], and same-race negotiation, $B = -.01$, $SE = .06$, 95% CI[-.13, .11]. In short, Study 3 replicated the lay theory effect on interracial trust and showed that this effect may potentially trickle down to cooperation in interracial negotiation.

General Discussion

Across three experiments using different interracial (vs. same-race) conflict situations, our results show a consistent pattern that social constructionist (vs. essentialist) beliefs about race promote interracial trust in intergroup contexts. Additionally, we explored the implications of trust on cooperation in an interracial social dilemma (Study 2) and on joint gains in face-to-face

interracial negotiation (Study 3). We found interracial trust mediated the effect of the lay theory

of race and predicted more cooperation and higher joint gains in negotiation in intergroup

settings. It is worth noting that the lay theory of race effects were consistent regardless of: a)

whether the lay theory was measured (Studies 1 and 3) or manipulated (Study 2), b) whether

individual differences in other lay theories were controlled for (Study 1), and c) the specific

racial/ethnic compositions in the interracial conflict.

Contributions to the Literature

The current work expands the lay theories literature by showing that people's subtle

assumptions about the nature of race can have critical social implications. Specifically, we found

that the lay theory of race influenced trust. Importantly, this effect is specific to the intergroup

context, but not intragroup context. Although many studies have shown that the lay theory of

race can affect intergroup relations (Chao & Kung, 2015; Hong et al., 2009), no research directly

examines its effect on trust, which is the precursor of relationship satisfaction, organizational

effectiveness, and societal prosperity (Dirks & Ferrin, 2001; Putnam, 1993). The current work

has addressed this important gap in the literature by providing the first empirical evidence to

connect the concept of lay theory of race and intergroup trust.

Understanding intergroup relations. The current work contributes to the literature on

intergroup relations in several ways. Whereas past research examining intergroup trust was

relatively scarce (Dovidio et al., 2008) and focused mainly on situational antecedents (e.g., the

level of diversity in the neighborhood, the frequency and valence of intergroup contact), the

understanding of how individual differences influence intergroup trust remains limited (Stanley

et al., 2011). This research adds to the literature by uncovering an individual difference—the lay

theory of race—as an important antecedent of intergroup trust. Individuals who endorse social

constructionist (vs. essentialist) beliefs show higher trust toward their interracial partner. Results

from the manipulation study (Study 2) also suggest that social constructionist (vs. essentialist)

beliefs could be situationally induced to enhance trust in an interracial context. In addition, the

effects of the lay theory of race on intergroup trust seems to be highly generalizable: The positive

effect of social constructionist (vs. essentialist) beliefs on interracial trust was replicated across

interracial contexts (i.e., team conflict scenario, prisoner's dilemma game, and face-to-face

negotiation), and across interaction media (i.e., online or in-person interaction).

In addition, this research further contributes to the intergroup literature by examining the

antecedents of intergroup trust in various conflict situations in which trust is elusive. Intergroup

trust is not easy to build even in a neutral or cooperative context. In such competitive situations

as negotiation and prisoner's dilemma in which individuals are motivated to maximize personal

benefits, intergroup trust is even harder to build (Adair et al., 2001). Understanding factors that

can promote trust and harmonious intergroup relations in competitive conflict situations is

critical, but the extant literature is very limited in this area (Hameiri et al., 2014). To this end, the

current finding adds to the literature, suggesting that conflict situations that induce a sense of

competitiveness do not seem to deter individuals who endorse social constructionist (vs.

essentialist) beliefs from extending trust to outgroup members. Moreover, their trust can turn into

beneficial conflict resolution outcomes (e.g., joint negotiation gain). The current research

suggests that the lay theory of race can be shaped in intergroup contexts to induce trust, which

might help in de-escalating and diminishing intergroup conflicts.

Dissecting effects of lay theories. Besides contributing to the literature on intergroup

relations**,** the current research presents direct evidence to support a theoretical assumption in the

lay theories literature that the impact of lay theories is context-specific. Individuals hold lay

theories about different personal attributes (e.g., personality, ability, race), and the lay theory in

each domain would only be activated when the given theory is applicable in the immediate

context (see Higgins, 1996). Theoretically, the lay theory of race is applicable to intergroup

contexts where racial and ethnic group differences are salient, but not relevant in intragroup

contexts where the sense of groupness is not salient. However, this argument has not been

directly tested, because existing research on the lay theory of race focused mainly on intergroup

situations and did not examine the effects in intragroup contexts.

Across three studies, we included both intergroup and intragroup conflict situations. Our

results consistently support the hypothesis that the lay theory of race influences trust in

interracial contexts. In same-race contexts, in which there is no ingroup-outgroup differentiation,

the lay theory of race effect on trust was not significant. However, it is interesting to note that

there was an insignificant trend for essentialist (vs. social constructionist) beliefs to have a

positive effect on ingroup trust in the same-race conditions. We argue that essentialist (vs. social

constructionist) beliefs tend to show preferences toward an ingroup only when individuals

endorsing essentialist (vs. social constructionist) beliefs are aware of the existence of an

outgroup. In the same-race conditions across our three studies, there were no outgroup members

involved in the immediate situation; therefore, it is consistent with our expectation that the effect

of the lay theory of race on ingroup trust did not significantly emerge. Nevertheless, it is possible

that when the existence of an outgroup is salient in ingroup interactions, essentialist (vs. social

constructionist) beliefs will predict a positive effect on ingroup trust. Future studies should

explore the possibility, for instance, by testing the effect of the lay theory of race on ingroup trust

when an outgroup threat is salient or in a foreign culture.

In addition, the current study also demonstrated that the effects on interracial trust are unique outcomes of the lay theory of race, but not lay theories in other domains, such as lay theories of personality and intelligence (Study 1). Overall, our results provide the lay theories literature with strong empirical support for the context-specificity property of lay theories.

Manipulating lay theories. Lay theories can be induced through educational interventions (Blackwell, Trzesniewski, & Dweck, 2007; Yeager et al., 2016; Yeager, Trzesniewski, & Dweck, 2013). Therefore, promoting social constructionist (vs. essentialist) beliefs in a context with heightened intergroup conflicts may enhance the effectiveness of existing intergroup bias reduction interventions. The most common intergroup bias reduction methods in the existing literature involve intergroup contact (Pettigrew, 1998). Decades of research on intergroup contact has shown that meaningful and positive interactions with outgroup members can reduce intergroup bias (Pettigrew & Tropp, 2008; Wagner, Tropp, Finchilescu, & Tredoux, 2009). However, when intergroup conflict is heightened, meaningful and positive interactions between groups are often less feasible, hence limiting the effectiveness of intergroup contact interventions for increasing intergroup trust. Our findings suggest that one possible complementary strategy could be inducing social constructionist beliefs to facilitate positive intergroup contact. Study 2, for example, showed that situationally inducing social constructionist (vs. essentialist) beliefs can increase intergroup trust and promote cooperation even in the face of conflicting interests. Yet, as discussed previously, it is crucial to note the possible boundaries of the lay theory intervention. The current work suggests that inducing social constructionist beliefs would only bring about benefits in intergroup contexts, but not in intragroup ones (where essentialist beliefs seem to be related to intragroup trust). Future research that aims to reduce intergroup bias by manipulating the lay theory of race should be mindful of

the fact that although social constructionist beliefs might increase intervention effectiveness by promoting intergroup trust, it would be inefficient in promoting trust in intragroup contexts.

Limitations and Future Directions

We draw attention to several limitations of the present work that future research can improve. In spite of our theoretical grounding in the conflict literature that trust is a strong antecedent of cooperation (Kong et al., 2014; Kramer & Carnevale, 2008), we acknowledge the possibility that there could be a reverse order of influence, from cooperation outcomes to trust, that our studies cannot directly rule out. To measure the process of trust *during* the same-race or interracial interaction, Studies 2 and 3 included trust scales after the interaction. This design has the benefit of not having to interrupt the interaction itself, yet it rendered trust measured temporally after cooperation. This was a particularly critical issue in Study 2. In that study, the level of cooperation from the bogus partner in the prisoner's dilemma game was transparent— participants knew the payoff of their partner before they reported their trust. The issue was less critical in Study 3, however. This was because the negotiation gain of the partner was not transparent—participants did not know objectively the level of cooperation from their partner— and participants' trust was measured *before* the payoffs of the negotiation partners were revealed. As additional analyses revealed further, switching the order between trust and cooperation in the mediation model produced insignificant indirect effects, providing some preliminary evidence to suggest that the lay theory may have a more immediate effect on trust than cooperation. Yet regardless, it is noteworthy that these study designs were not ideal in testing the direction of the relationship between trust and cooperation, which requires future experiments to manipulate trust or test the two effects sequentially.

As the current research paves the way toward understanding the role of the lay theory of race in building intergroup trust, we also recognize that there is still much to learn about the potential mechanisms that contribute to increased intergroup trust. From the extant literature on intergroup relations we know that the lay theory of race was associated with the degree to which individuals perceive racial categories as discrete entities with rigid group boundary. We argued that people who endorse social constructionist beliefs tend not to endorse rigid ingroup-outgroup differentiation, and thus should be more likely to extend trust toward outgroup members compared with those who endorse essentialist beliefs. Our findings were in line with the prediction. We observed that in interracial settings, social constructionist (vs. essentialist) beliefs indeed led to higher trust. Extending beyond the scope of this paper, we believe that further research is needed to understand the potential mechanisms underlying the relationship between lay theories and trust. For example, social constructionist (vs. essentialist) beliefs are associated with open-minded thinking and creativity (Tadmor et al., 2013). One potential mechanism could be that social constructionist beliefs increase the curiosity of individuals to seek new ideas from and engage in experiences with people who seem different. In this case, increased intergroup trust could then be a spill-over effect of curiosity toward foreign others and positive expectations in learning from others in the intergroup setting. As discussed before, positivity can lead to trust (Johnson-George & Swap, 1982), and this leads to a possibility that in some cases people can be *extra* positive and trusting toward the outgroup, exceeding the positivity and trust levels toward the ingroup. Our findings seem to support this reasoning, and people who endorsed social constructionist beliefs (+1SD) reported higher trust toward a racial-ethnic outgroup than an

ingroup in Study 1 and 3.[7] Future research will benefit from testing different mechanisms

underlying the relationship between the lay theory and trust.

Moreover, as we expand the scope of our finding and connect it to the broader literature

on intergroup relations, we realize that there are important research directions we have yet to

explore. One example is a potential reciprocal relationship between the lay theory of race and

intergroup contact. Extensive research has shown that positive intergroup contact improves

attitudes and trust toward the outgroup (Pettigrew, 1998). On one hand, the lay theory of race

may predict intergroup attitude and contact behavior. As social constructionist beliefs encourage

individuals to reach out more to racial outgroups (Chao et al., 2016), social constructionist

beliefs can increase intergroup trust in a given context through having extensive prior intergroup

contact experiences. On the other hand, it is also possible that intergroup contact influences the

formulation of the lay theory of race. Positive intergroup contact operates through multiple

mechanisms. They include enhancing empathy towards an outgroup, reducing intergroup

anxiety, and allowing the emergence of a shared identity (Pettigrew & Tropp, 2008). Common

across these processes is the idea that positive intergroup contact helps dissolve the perceived

boundary between members of different groups. Therefore, positive intergroup contact may

increase trust through its influence on enhancing social constructionist (vs. essentialist) beliefs. It

would be interesting for future research to investigate a reciprocal causal relation between the lay

theory of race and intergroup contact.

Furthermore, future research will benefit from extending the current finding to other

types of situations. For instance, to hold the partner's response constant in the Prisoner's

Dilemma, Study 2 predetermined that the bogus partner always chose to cooperate regardless of

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[7] Study 1: $B = .53$, $SE = .23$, $t(25) = 2.32$, $p = .029$, $\eta_p^2 = .18$, 95% CI[.06, 1.00]; Study 3: $B = .50$, $SE = .18$, $t(41) = 2.79$, $p = .008$, $\eta_p^2 = .16$, 95% CI[.14, .87].

the participant's decision to cooperate or defect. This unconditional cooperation might not be typical of most people's real-world experience (c.f. Dunning, Anderson, Schlösser, Ehlebracht, & Fetchenhauer, 2014). Future work will advance this program of research by exploring the extent to which lay theories' trust-inducing effect holds in more difficult or hyper-competitive situations (e.g., distributive negotiation) (Barry & Friedman, 1998) and in more naturalistic settings, such as interracial friendship development (Shelton, Trail, West, & Bergsieker, 2010). In addition, although our results suggest that social constructionist beliefs are more conducive than essentialist beliefs in interracial settings, there could be other contingencies that make essentialist beliefs adaptive in other interracial situations. For instance, essentialist beliefs may enable people to pick up useful social knowledge when there are reliable and meaningful group differences. Being able to understand group differences is part of humans' social intelligence that helps us understand and predict group behaviors better (Kihlstrom & Cantor, 2000). Essentialist beliefs may therefore be adaptive in some situations, and future research should keep an open mind and expect more nuanced effects of the lay theory.

        Finally, we recommend future research to test our observed effects in more diverse samples and other forms of social conflicts. Although the current studies varied in different racial-ethnic compositions in the intergroup context, the samples were mainly undergraduate participants, limiting the generalizability of the findings to other populations. More research is needed in other cultures to examine the extent to which the lay theory's trust-inducing effect can generalize. More future work is also needed to test whether certain lay theories can facilitate trust between other social groups, such as gender groups and religious groups, generating more knowledge for improving intergroup relations across diverse fault lines in society.

Conclusion

Trust serves as the foundation for social harmony and prosperity, but intergroup trust is not easy to build. In our modern multicultural and globalized society, we should strive to understand and break down the mental barriers that hinder diverse groups from trusting each other. To this end, the current research suggests that the belief that race is a malleable social construction (vs. fixed essence) can help people extend trust toward racial-ethnic outgroups in conflict and achieve mutually beneficial solutions. As we better understand how to promote intergroup trust effectively, we may bridge racial divides and promote a more harmonious multicultural society in which diverse groups of people can trust each other and prosper together.

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Table 1

Descriptives and Intercorrelations among Variables in Study 1.

			Correlations		
Variables	Mean	SD	1	2	3
1. Lay Theory of Race	3.49	0.87	-		
2. Lay Theory of Personality	3.25	0.89	.20	-	
3. Lay Theory of Intelligence	3.36	1.10	.34**	.31*	-
4. Trust towards Partner	4.33	1.09	.04	.02	.19

Note. $N = 60$. *$p \leq .05$, **$p \leq .01$.

Table 2

Descriptives and Intercorrelations among Variables in Study 2.

Variables	Mean	SD	Correlations			
			1	2	3	4
1. Lay Theory of Race	3.32	1.04	-			
2. Difficulty of Article	2.33	1.05	.13	-		
3. Tone of Article	4.54	.86	-.002	-.17	-	
4. Trust towards Partner	5.12	.78	-.05	-.24*	.24*	-
5. Cooperation in Prisoner's Dilemma	3.68	1.80	.07	-.18	-.08	.30**

Note. N = 97. *$*p \le .05$, $**p \le .01$.*

Table 3

Descriptives and Intercorrelations among Variables in Study 3.

			Correlations	
Variables	Mean	SD	1	2
1. Dyad Lay Theory of Race	3.65	.66	-	
2. Dyad Trust	5.28	.73	.17	-
3. Joint Gains	12251.11	2458.02	.09	.35**

Note. N = 180; 90 dyads. **p* ≤ .05, ***p* ≤ .01.

Figure 1. Study 1 Estimates of Levels of Trust toward Partner as Function of Lay Theory of

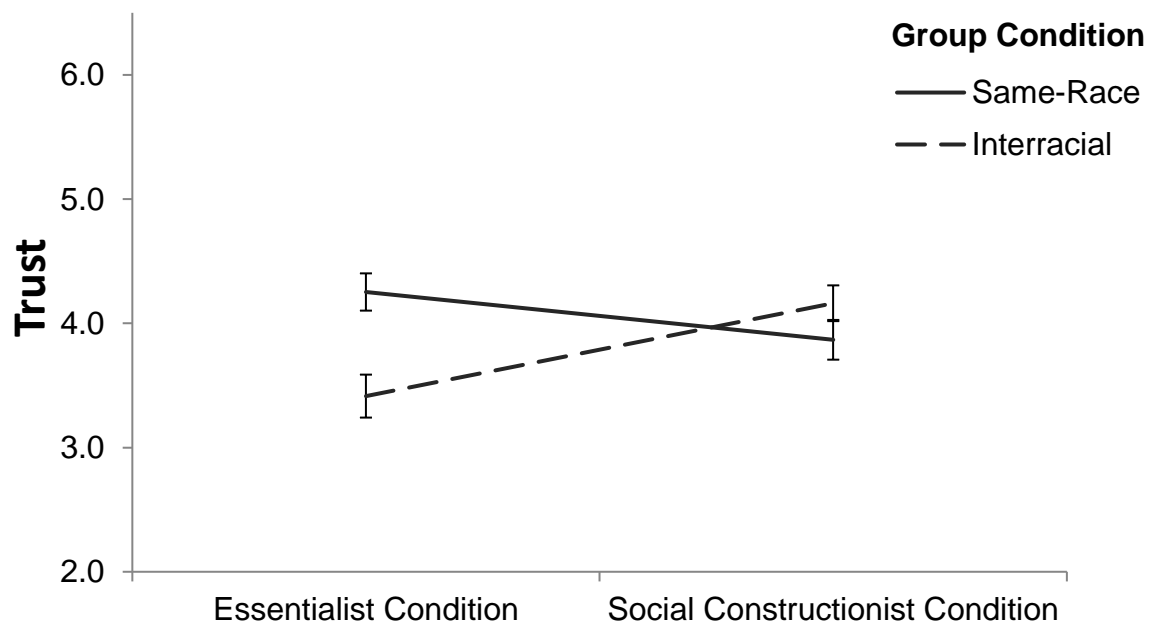Race and Group Condition. Error bars are means +/- 1 S.E.

Figure 2. Study 2 Estimates of Levels of Trust toward Partner as Function of Lay Theory of

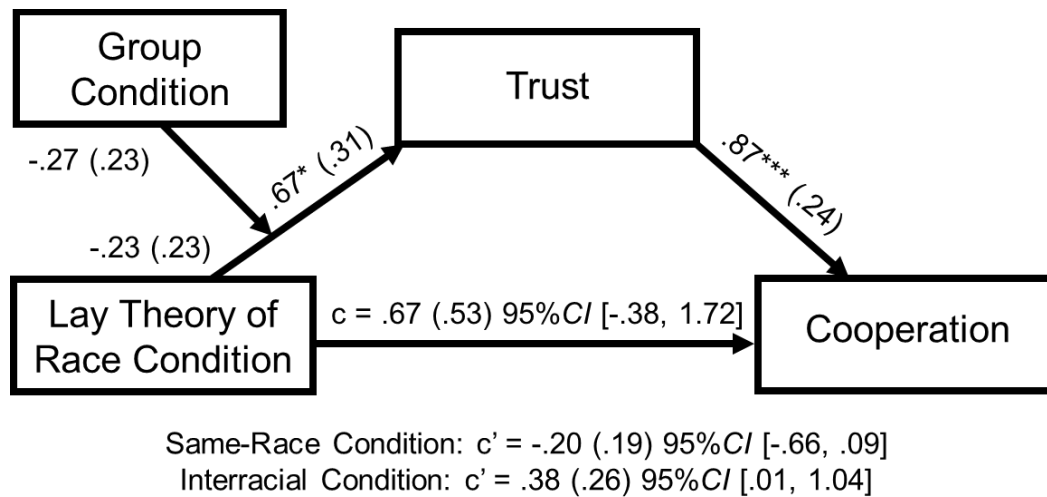Race Condition and Group Condition. Error bars are means +/- 1 S.E.

Figure 3. Moderated Mediation Analysis of the Effect of Lay Theory of Race Condition via

Trust on Cooperation as a Function of Group Condition (Study 2). Lay Theory Condition:

Essentialist Beliefs about Race = 0, Social Constructionist Beliefs about Race = 1. Estimates are

unstandardized coefficients with standard errors reported in the parentheses. *$p \leq .05$, **$p \leq .01$,

***$p \leq .001$.

Figure 4. Study 3 Estimates of Levels of Trust toward Partner as Function of Lay Theory of

Race and Group Condition. Error bars are means +/- 1 S.E.
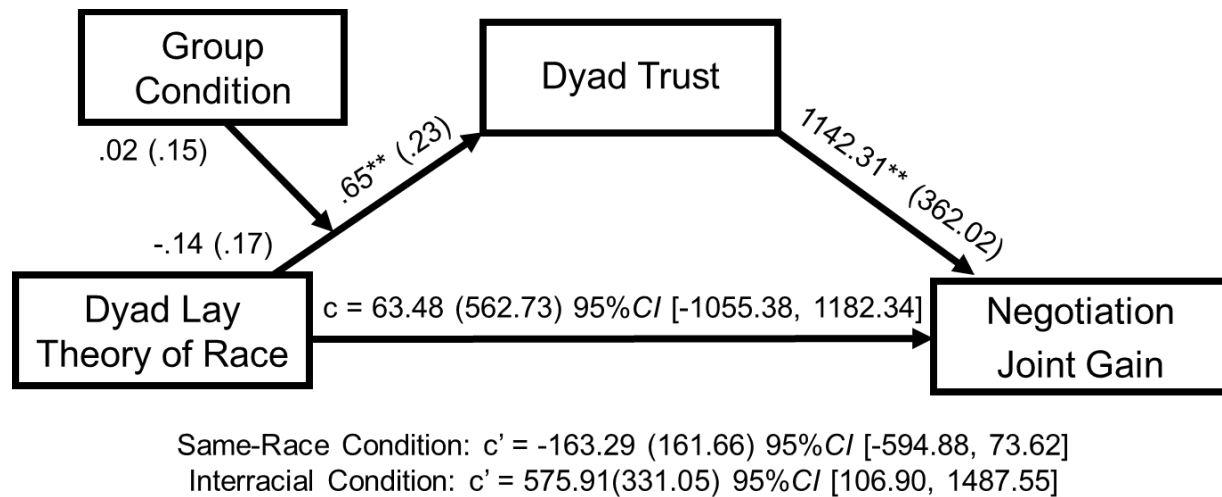
Figure 5. Moderated Mediation Analysis of the Dyad Effect of Lay Theory of Race via Trust on

Negotiation Joint Gain as a Function of Group Condition (Study 3). Estimates are unstandardized

coefficients with standard errors reported in the parentheses. The higher the score of lay theory

of race, the stronger the dyad's social constructionist (vs. essentialist) beliefs. *p* ≤ .05, **p*

≤ .01.