

# Is Racial Bias Malleable? Whites' Lay Theories of Racial Bias Predict Divergent Strategies for Interracial Interactions

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How do Whites approach interracial interactions? We argue that a previously unexamined factor—beliefs about the malleability of racial bias—guides Whites' strategies for difficult interracial interactions. We predicted and found that those who believe racial bias is malleable favor learning-oriented strategies such as taking the other person's perspective and trying to learn why an interaction is challenging, whereas those who believe racial bias is fixed favor performance-oriented strategies such as overcompensating in the interaction and trying to end the interaction as quickly as possible. Four studies support these predictions. Whether measured (Studies 1, 3, and 4) or manipulated (Study 2), beliefs that racial bias is fixed versus malleable yielded these divergent strategies for difficult interracial interactions. Furthermore, beliefs about the malleability of racial bias are distinct from related constructs (e.g., prejudice and motivations to respond without prejudice; Studies 1, 3, and 4) and influence self-reported (Studies 1–3) and actual (Study 4) strategies in imagined (Studies 1–2) and real (Studies 3–4) interracial interactions. Together, these findings demonstrate that beliefs about the malleability of racial bias influence Whites' approaches to and strategies within interracial interactions.

*Keywords:* interracial interaction, bias, prejudice, theories of racial bias, beliefs about change

Interracial interactions have become very common in the United States, yet they can be difficult, awkward, and stressful for many people (Pearson, Dovidio, & Gaertner, 2009; Richeson & Trawalter, 2005; Richeson & Shelton, 2007; Shelton & Richeson, 2006; Trawalter, Richeson, & Shelton, 2009; Vorauer, & Sakamoto, 2006). In the present research, we explore one factor that might influence Whites' approaches to and outcomes in interracial interaction: Whites' beliefs about whether racial bias can change. We argue that believing racial bias is malleable versus fixed leads Whites to approach difficult interracial interactions differently and to draw on distinct strategies in these interactions. Whites' beliefs about the malleability of racial bias offer a new lens for examining interracial perceptions and interracial interaction dynamics and thus may guide the development and implementation of new theory-driven interventions for improving interracial interactions.

## Lay Theories of an Attribute's Malleability

Lay theories of malleability (also referred to as *implicit* theories, in the sense that they are poorly articulated and thus not often

*explicit*; Dweck, Chiu, & Hong, 1995) exist along a continuum from seeing an attribute as utterly fixed and unchangeable (an *entity theory*) to entirely flexible and changeable (an *incremental theory*). For example, in the domain of intelligence, individuals vary in the extent to which they see intelligence as a fixed trait (an entity theory of intelligence) or a malleable trait (an incremental theory of intelligence; see Dweck et al., 1995; Dweck & Leggett, 1988). People can and do hold distinct lay theories about the malleability of a variety of attributes, such as shyness, morality, attitudes, emotions, and general personality (Beer, 2002; Dweck et al., 1995; Molden & Dweck, 2006; Petrocelli, Clarkson, Tormala, & Hendrix, 2010; Tamir, John, Srivastava, & Gross, 2007). For challenging situations, in particular, these beliefs about a trait's malleability become important because they guide one's framing of failure.

## Lay Theories Frame Failure

Over two decades of research finds that endorsing either an entity or an incremental theory of a particular attribute influences how people understand their performance in difficult or challenging situations (Cain & Dweck, 1995; Erdley, Cain, Loomis, Dumas-Hines, & Dweck, 1997; Wood & Bandura, 1989). If a task or situation is difficult, it poses a risk for failure and the need to interpret this failure. For entity theorists, experiencing a struggle in difficult situations can be construed as diagnostic of low absolute levels of ability, possibly revealing to themselves or to others that they do not possess the particular quality or trait required for success in this domain. However, incremental theorists tend to construe the same struggle as offering diagnostic information about their current and presumably changeable levels of ability, potentially providing useful information about how to be more successful in this domain in the future. In contrast, if a task or situation is easy, it should not pose a risk for failure (or a need to

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interpret failure). Thus, easy situations or tasks have little need to draw on lay theories.

For example, when children hold entity theories of personality—they believe personality is fixed—they experience rejection as a negative judgment of their (fixed) personality and, as a result, reduce their effort to connect with others (Erdley et al., 1997). In contrast, when children hold incremental theories of personality—they believe personality can change—they experience rejection not as a judgment of their unchangeable personality but instead as information about the effectiveness of their personality and behaviors and, as a result, increase their effort to connect (Erdley et al., 1997).

As another example, a student's lay theory of intelligence dramatically influences responses to difficult academic situations, such as tests and challenging exercises. Again, easy tests or academic exercises are not threatening and, by virtue of being easy, do not put one at risk for failure or the possibility of being seen by others as unintelligent. In contrast, tasks perceived to be difficult do put one at risk for failure. If a person believes intelligence is fixed, then failure at a difficult academic task would imply that the person has reached the limit of his or her intelligence. For example, when students transition to middle school, a time when the math curriculum becomes much more rigorous and math grades decline somewhat, students with entity (fixed) theories of intelligence tend to interpret the new challenge as evidence that they are not good at math (Blackwell, Trzesniewski, & Dweck, 2007). However, if a person believes intelligence is malleable, then failure at a difficult academic task implies not that the person has reached the limit of his or her intelligence but that the person needs to work harder to overcome this hurdle. Thus, in the transition to middle school math, students with incremental theories of intelligence frame the difficulty as an opportunity to grow and show improvement in their math performance (Blackwell et al., 2007).

### Lay Theories Influence Behaviors Used to Manage Challenging Situations

Because entity and incremental theorists see failure differently, they tend to adopt divergent strategies for managing challenging situations, for coping with this difficulty, and for anticipating potential failure (Dweck, 1999; Dweck et al., 1995; Dweck & Leggett, 1988). Entity theorists favor *performance strategies*, or strategies that aim to showcase abilities and hide flaws to gain favorable judgments of competence (Dweck & Leggett, 1988). Because entity theorists of intelligence believe intelligence is fixed and that failure at a difficult academic task can be a judgment of one's essential ability, they have the goal of avoiding the appearance of unintelligence and engage in performance strategies that demonstrate intelligence. These strategies include opting out of challenging tasks and into tasks that do not pose a risk of failure (Dweck et al., 1995; Dweck & Leggett, 1988); comparing oneself with others who demonstrate weaker performances (Nussbaum & Dweck, 2008); trying to divert one's own or others' attention away from a performance on a difficult task; and trying to exit a difficult situation that challenges one's current level of ability (Dweck & Leggett, 1988; Elliott & Dweck, 1988). Although these strategies help to avoid the conclusion that one is (to the mind of an entity theorist, irrevocably) unintelligent, this performance focus exacts a cost: By avoiding tasks that are challenging or could produce failure, one sacrifices opportunities that could lead to improve-

ment, such as feedback about weaknesses and tactics for successfully navigating the challenge.

In contrast, incremental theorists favor *learning strategies*, or strategies that help one learn from mistakes to increase competence (Dweck & Leggett, 1988). Because incremental theorists of intelligence believe failure at a difficult academic task is not a judgment of one's essential ability but rather information about a behavior that can be adjusted in the future, they deploy strategies that facilitate their learning from a difficult task or situation. These strategies include, for example, openness to negative feedback (Dweck & Leggett, 1988). Learning strategies also include a preference for challenging tasks over those that will simply affirm one's current level of ability (Dweck, 1999; Dweck & Leggett, 1988) because one is more likely to learn from challenging or difficult experiences than from nonchallenging experiences. Indeed, incremental theorists become more motivated after failure, not less motivated (Molden & Dweck, 2006). And, in contrast to entity theorists of intelligence, incremental theorists of intelligence take remedial action to improve after poor performance (Hong, Chiu, Dweck, Lin, & Wan, 1999).

Across a range of attributes, then, lay theories tend to guide behavior in situations that could provide information about these attributes. Where failure is possible, holding an entity theory of a relevant attribute leads to performance goals and protective strategies, whereas holding an incremental theory leads to learning goals and to using one's performance (successful or unsuccessful) as information to prepare for the next challenge.

### Lay Theories of Racial Bias in Difficult Interracial Interactions

Analogous to this previous work, we propose that people vary in their lay theories of racial bias. We argue that whereas some believe racial bias is fixed and that people do not become more or less racially biased (an entity theory of racial bias), others believe racial bias is malleable and can change over time (an incremental theory of racial bias).

Lay theories of racial bias likely guide behaviors in interracial interactions, particularly those that are difficult to navigate (e.g., those that require a discussion about race-related topics, those in which one's interaction partner appears uncomfortable, or those that are not fluid). Whites' high-status dominant position in the United States increases the likelihood that they will be stereotyped as holding prejudices and engaging in unfair behaviors in intergroup contexts (e.g., Niemann, Jennings, Rozelle, Baxter, & Sullivan, 1994), and Whites tend to believe that minority group members see Whites as racist (e.g., Bergsieker, Shelton, & Richeson, 2010; Frantz, Cuddy, Burnett, Ray, & Hart, 2004; Vorauer, Main, & O'Connell, 1998). When interracial interactions are difficult, they tend to heighten Whites' concerns about appearing racist (Richeson & Shelton, 2007; Shapiro & Neuberg, 2008; Shelton, Richeson, & Vorauer, 2006; Shelton, West, & Trail, 2010; Vorauer & Kumhyr, 2001; Vorauer, Hunter, Main, & Roy, 2000). Whites who experience difficulties in interracial interactions (compared with intraracial interaction and neutral interracial interactions) show increased anxiety (Plant, 2004; Plant & Butz, 2006; Shelton, 2003; Shelton et al., 2010) and reduced interest in future interactions (Pearson et al., 2008; Plant, 2004; Plant & Butz, 2006; Plant & Devine, 2003). Thus, when an interracial interaction

is going well, there is very little threat. However, when one is struggling in an interracial interaction, the possibility arises that racial biases have contributed to the difficulty of the interaction, that racial biases could become exposed during this difficult interaction, or that racial biases could be interpreted by others as driving the problems in this interaction.<sup>1</sup> Depending on one's lay theory of racial bias, the difficulty in this interracial interaction is likely interpreted as offering some diagnostic information about one's possible enduring biases (to an entity theorist) or current biases (to an incremental theorist).

These concerns about appearing racially biased should emerge regardless of whether a person holds egalitarian ideologies. That is, egalitarian ideologies can motivate the desire to act and appear unbiased in an interracial interaction (Plant & Devine, 1998) or to develop one's skills in the domain of positive intergroup interaction. Yet this concern may extend to those who do not endorse such ideologies. In the United States, there exist strong social pressures to refrain from appearing prejudiced (Plant & Devine, 1998). For example, social norms condemn prejudice expression (e.g., Crandall & Eshleman, 2003; Crandall, Eshleman, & O'Brien, 2002; Shapiro & Neuberg, 2008), leading those who appear prejudiced to be negatively evaluated or treated (e.g., Dovidio & Gaertner, 2000, 2004; van Leeuwen, van den Bosch, Castano, & Hopman, 2010). As a result, even those individuals who do not hold egalitarian ideologies may still desire to appear unbiased in an interracial interaction. Therefore, regardless of whether Whites actually hold any explicit or implicit prejudices or believe themselves to be biased, Whites tend to be concerned about being labeled as prejudiced and behaving in a prejudiced fashion during an intergroup interaction (Dunton & Fazio, 1997; Plant & Devine, 1998).

Thus, we propose that lay theories of racial bias should influence behaviors in difficult interracial interactions (regardless of a person's level of bias) because entity and incremental theorists of racial bias will likely construe the challenges in these interactions differently. Entity theorists' beliefs in the fixed nature of racial bias should frame difficult interracial encounters as threatening (as they provide an opportunity to reveal that one is unchangeably racially biased), leading entity theorists to adopt performance-oriented strategies to help them deny, hide, or avoid the appearance of bias. Incremental theorists' beliefs in the malleability of racial bias should frame difficult encounters as opportunities to learn from mistakes, leading incremental theorists to adopt learning-oriented strategies to help them improve or reduce this difficulty in the future.

### Performance and Learning Strategies in Difficult Interracial Interactions

Here we describe the strategies that Whites might use to achieve learning and performance goals in interracial interactions. To identify these strategies, we considered the types of learning and performance strategies entity and incremental theorists use in other social domains (e.g., Dweck et al., 1995; Dweck & Leggett, 1988; Molden & Dweck, 2006) and matched these to behaviors that Whites tend to use in interracial interactions (Trawalter et al., 2009). We also drew from recent reviews integrating motivational mindsets, including performance and learning goals, with behaviors in intergroup interaction (Migacheva, Tropp, & Crocker, 2011; Murphy, Richeson, & Molden, 2011).

### Strategies to Attain Performance Goals

In situations that can be perceived to reveal one's racial bias, entity theorists likely pursue a performance goal and strategies thought to facilitate this goal. Performance strategies in interracial interactions have been characterized as stemming from a "prove and perform" focus and, in general, are designed to mask difficulties within interracial interactions to showcase that one is not biased (Migacheva et al., 2011; Murphy et al., 2011).

Individuals with a performance goal in the domain of academic achievement often attempt to avoid difficult tests or to quickly exit situations that test intelligence (Leggett & Dweck, 1986, as cited in Dweck & Leggett, 1988). In the domain of interracial interaction, a similar performance strategy is avoiding interracial interactions altogether (Plant & Butz, 2006)—if one never has the chance to reveal bias, one cannot be labeled *biased*. This should also facilitate seeking escape from or quick endings to difficult interracial interactions. Again, the less time one spends in a difficult interaction, the fewer opportunities one has to express bias, learn about one's potential bias, or be seen as biased. These strategies have been referred to as *escape* or *avoidance strategies* (Trawalter et al., 2009). Similarly, one may avoid learning about one's racial bias or how to change it; because entity theorists would interpret information that one has racial bias as evidence of being (irrevocably) racist, entity theorists may show little interest in this information in an attempt to avoid this permanent label.

Individuals with a performance goal in the academic domain often attempt to appear intelligent to themselves or others (Dweck & Leggett, 1988; Zhao & Dweck, 1994, as cited in Dweck et al., 1995). In the domain of interracial interactions, similar performance strategies likely include attempting to appear unbiased. Individuals with performance goals might therefore try to smooth over or ignore any problems that arise in these interactions or attempt to be very nice (i.e., nicer than one normally would be) throughout the interaction. These types of strategies have been called *overcompensation strategies* in the intergroup interaction literature (Trawalter et al., 2009).

The interracial interaction literature also demonstrates that Whites engage in *strategic color blindness* to avoid appearing biased (Apfelbaum, Sommers, & Norton, 2008; Norton, Sommers, Apfelbaum, Pura, & Ariely, 2006), whereby Whites go out of their way to avoid seeing or mentioning race (Norton, Vandello, Biga, & Darley, 2008). In essence, the color-blind approach rests on the belief that if a person does not notice race, he or she cannot be racist. Research finds that even in situations where mentioning race is essential to effective communication, Whites will still avoid all mention of race (Norton et al., 2006). We categorize strategic color blindness as a performance strategy because it involves a performance—actively avoiding the topic of race—with the goal of demonstrating one's lack of bias. Like all of the strategies described in this section, strategic color blindness serves the performance goal of making a positive impression by limiting opportunities to be perceived as racist.

<sup>1</sup> Although we focus on the difficulties for majority group members in intergroup interracial interactions, these interactions are often difficult and stressful for both majority and minority group members (e.g., Bergsieker et al., 2010; Shapiro & Neuberg, 2008; Shelton & Richeson, 2006; Vorauer & Kumhyr, 2001).

## Strategies to Attain Learning Goals

In situations that can be perceived to reveal one's racial bias, incremental theorists of racial bias are likely to pursue a learning goal and strategies thought to facilitate this goal. Learning strategies in interracial interactions stem from a learning and development focus and, in general, are designed to gain information to improve behaviors in the future (Migacheva et al., 2011; Murphy et al., 2011).

Individuals with learning goals within the domain of academic achievement seek feedback and/or attempt to learn more about what they did wrong on challenging tests (Dweck & Leggett, 1988). Within the domain of racial bias, incremental theorists are likely to be relatively open to feedback about their racial biases and behaviors in interracial interactions. In addition, learning goals may manifest as attempts to learn more about one's interaction partner, the topic at hand, and/or what went wrong. To achieve these goals, individuals will likely engage in direct learning, such as asking for feedback about problematic aspects of an interaction itself or asking their interaction partners more about themselves or their experiences (Migacheva et al., 2011). Similarly, individuals may try more indirect learning strategies to understand the reactions of their interaction partner, such as taking their partner's perspective.

## Overview of Studies

Our analysis suggests that majority group members likely vary in the extent to which they see racial bias as fixed or malleable, and these lay theories of racial bias should guide the strategies majority group members use in difficult interracial interactions. Specifically, we expect entity theorists of racial bias—those who see racial bias as fixed—to have performance goals in difficult interracial interactions. These goals should facilitate strategies such as overcompensation by smoothing over any problems, avoiding the topic of race, and exiting the situation. In contrast, we expect that incremental theorists of racial bias—those who see racial bias as malleable—have learning goals in difficult interracial interactions. These goals should facilitate strategies such as seeking feedback, being open to the topic of race, and learning about one's partner by asking questions (direct learning) or taking their perspective (indirect learning).

Across four studies, we explore Whites' preference for performance and learning strategies in difficult interracial interactions as a function of measured (Studies 1, 3, and 4) and manipulated (Study 2) lay theories of racial bias. By comparing neutral with difficult race-related interactions (Study 3) and interracial to intraracial interactions (Study 4), we are able to identify the conditions under which lay theories of racial bias exert the most influence over Whites' behaviors. In all, the present studies explore hypothesized differences in Whites' approaches to difficult interracial interactions as a function of whether they believe racial bias is malleable or fixed.

## Study 1

In Study 1, we examine the unique value of lay theories of racial bias for predicting Whites' approach to difficult interracial interactions above and beyond the role of other prejudice-relevant variables. We anticipated that incremental theories of racial bias

would predict endorsement of strategies to promote learning, including direct learning strategies (e.g., asking what is wrong) and indirect learning strategies (e.g., taking the other person's perspective). In contrast, we anticipated that entity theories of racial bias would predict endorsement of strategies to promote a nonracist performance, including avoiding talking about, mentioning, or acknowledging race (strategic color blindness); trying to mask or smooth over a problem (e.g., being overly nice, pretending nothing is wrong); or escape (e.g., getting out of the interaction as quickly as possible).

Lay theories of racial bias should predict these learning and performance strategies over and above participants' general prejudices. However, prejudices may be correlated with lay theories such that those who hold more entity-oriented beliefs are likely to report more explicit prejudices. That is, for people high on explicit, self-reported prejudice, an entity theory would abdicate some responsibility for those beliefs: Believing prejudice is fixed and that there is not much one can do to change it could justify explicit prejudices.

## Method

**Participants.** Seventy-one White students (59 women) participated in class in exchange for extra credit.

### Materials and procedures.

**Lay theories of racial bias.** The lay theories of racial bias measure consisted of three items adapted from Dweck (1999) in which *racial bias* was substituted for *intelligence* (Items 1 and 2) or *morality* (Item 3): (a) "People have a certain amount of racial bias and they really can't do much to change it," (b) "A person's racial bias is something very basic about them and it can't be changed very much," and (c) "There is not much that can be done to change a person's racial bias";  $\alpha = .89$ . To be consistent with items measuring other kinds of lay theories (e.g., Dweck, 1999; Dweck et al., 1995), participants responded to these items using a 6-point Likert-type scale anchored at 1 (*strongly disagree*) and 6 (*strongly agree*). Higher scores indicated entity-oriented beliefs and lower scores indicated incremental beliefs.<sup>2</sup>

**Desire for feedback about bias (learning strategy).** Participants responded to one item measuring their desire for feedback about their own bias, which was anchored at 1 (*not at all*) and 6 (*a great deal*): "To what extent do you appreciate it when people give you pointers or tips on how to be less racially biased?"

**Strategic color blindness (performance strategy).** To measure strategic color blindness, we asked participants to report the extent to which mentioning race makes an interracial interaction go poorly (four items: "talking about race," "being in a situation where race is relevant," "acknowledging racial differences," "race coming up as a topic of conversation";  $\alpha = .73$ ). Participants responded to these items using a Likert-type scale anchored at 1 (*strongly disagree*) and 6 (*strongly agree*).

**Difficult interracial interaction strategies.** To assess strategies that individuals use in difficult interracial interactions, we asked participants to consider the question, "When you are in an interracial interaction (an interaction with someone who is of a different race/ethnicity) that is not going well, to what extent do you engage in the following behaviors?" Participants were then

<sup>2</sup> There were no participant gender differences in lay theory endorsement ( $t < 1$ ), thus, gender is not discussed.

asked to report the extent to which they would engage in learning-oriented behaviors, including direct learning strategies (two items, “try to figure out what’s going wrong so you can fix it,” “ask what the other person is thinking”;  $r = .52, p < .001$ ) and indirect learning strategies (two items, “try to take the perspective of the other person,” “try to empathize with the other person”;  $r = .61, p < .001$ ). Participants also responded to items designed to capture performance-oriented behaviors, including overcompensation strategies (two items, “try to pretend that the interaction is going well,” “try to be extremely nice—nicer than you normally would be”;  $r = .63, p < .001$ ) and escape strategies (one item, “try to end the interaction”). Participants responded to all items using a Likert-type scale anchored at 1 (*not at all*) and 6 (*a great deal*).

**Prejudice measures.** Consistent with previous research (Amodio, Devine, & Harmon-Jones, 2008; Devine, Plant, Amodio, Harmon-Jones, & Vance, 2002; Dovidio, Kawakami, & Gaertner, 2002; Swim & Miller, 1999), prejudice was measured with the Attitudes Toward Blacks Scale (Brigham, 1993). Specifically, the two most relevant subscales were used, the *Social Distance subscale*, which measures discomfort interacting with Blacks (e.g., “I would rather not have Blacks live in the same apartment building I live in”), and the *Affective Reactions subscale*, which measures different prejudice-related reactions (e.g., “I get very upset when I hear a White make a prejudicial remark about Blacks,” reverse scored). Participants responded to questions using a 7-point Likert-type scale anchored at 1 (*strongly disagree*) and 7 (*strongly agree*),  $\alpha = .84$ . Scores were calculated such that higher scores indicated greater anti-Black prejudice.

## Results

We predicted that lay theories of racial bias (coded such that high scores indicate entity theories) would be positively correlated with performance strategies and negatively correlated with learning strategies. We also anticipated that these patterns would emerge over and above any effects of prejudice.

**Analysis plan.** We first examined the correlation of lay theories of racial bias with measures of prejudice. Next, we examined the zero-order correlation of lay theories of racial bias with our focal dependent measures. For each analysis, we then included the measure of prejudice to examine whether prejudice accounts for the relationships between lay theories and the outcome variables. See Table 1 for full reporting of all regression analyses.

**Prejudice.** The Attitudes Toward Blacks Scale correlated marginally with lay theories of racial bias ( $r = .20, p = .09$ ), suggesting that entity theorists reported more explicit prejudice.

**Desire for feedback about bias (learning strategy).** We predicted that desire for feedback on how to reduce one’s bias would correlate negatively with lay theories. This prediction was supported: The more participants endorsed entity theories of racial bias, the less interested they were in information regarding how to reduce their racial bias ( $r = -.30, p = .01$ ). To examine whether this effect was due to entity theorists’ greater explicit prejudice, we conducted a regression analysis to predict participants’ desire for feedback from both lay theories of racial bias and Attitudes Toward Blacks Scale scores. Lay theories remained a significant predictor of desire for feedback ( $\beta = -.25, p = .03$ ) when controlling for Attitudes Toward Blacks.

**Strategic color blindness (performance strategy).** As anticipated, endorsement of strategic color blindness was predicted by lay theories of racial bias ( $r = .35, p = .002$ ), suggesting that more entity-oriented lay theories of racial bias correspond with endorsing a strategically color-blind approach in interracial interactions. In a regression with lay theories of racial bias and Attitudes Toward Blacks Scale scores as predictors, lay theories remained a significant predictor of strategic color blindness ( $\beta = .31, p = .008$ ).

**Performance strategies in difficult interracial interactions.** We expected that the more participants held entity (fixed) theories of racial bias, the more they would endorse performance strategies (escape and overcompensation strategies) in difficult interracial

Table 1  
Correlation and Regression Values for Lay Theories of Racial Bias and Prejudice With Learning and Performance Strategy Endorsement in Study 1

Dependent variable	<i>M</i>	<i>SD</i>	Lay theory of racial bias ( <i>r</i> )	Regression			<i>F</i>	<i>R</i> <sup>2</sup>
				Lay theory of racial bias	ATB	$\beta$		
Desire feedback about own bias (learning strategy)	4.20	1.37	-.30*	-.25*	-.23 <sup>†</sup>	5.35**	.14	
Strategic color blindness (performance strategy)	3.32	1.00	.35**	.35**	.22 <sup>†</sup>	6.98**	.17	
Strategies for difficult interactions								
Learning								
Direct learning	3.77	1.10	-.34**	-.27**	-.38**	11.61***	.26	
Indirect learning	4.05	0.98	-.26*	-.16	-.47***	13.21***	.28	
Performance								
Overcompensation	3.36	1.20	.32**	.34**	-.12	4.35*	.11	
Escape	3.15	1.51	.25*	.22 <sup>†</sup>	.14	2.91 <sup>†</sup>	.08	

Note.  $r$  = Pearson product-moment correlation;  $\beta$  = standardized beta; ATB = Attitudes Toward Blacks Scale (Brigham, 1993). Regression statistics are for concurrent regression on lay theory of bias and Attitudes Toward Blacks. The degrees of freedom for all regressions are 2, 68. For lay theory of racial bias, higher values indicate entity-oriented theory and lower values indicate incremental-oriented theory.

<sup>†</sup>  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

interactions. Consistent with predictions, lay theories were positively correlated with an escape strategy ( $r = .25, p = .04$ ) and an overcompensation strategy ( $r = .32, p = .007$ ) for managing difficult interracial interactions; these strategies were preferred by entity theorists of racial bias. A regression predicting an escape strategy from lay theories of racial bias and Attitudes Toward Blacks Scale scores revealed that over and above prejudice, lay theories of racial bias still predicted an escape strategy ( $\beta = .22, p = .069$ ). A regression predicting an overcompensation strategy from lay theories of racial bias and Attitudes Toward Blacks Scale scores revealed that over and above prejudice, lay theories of racial bias still predicted an overcompensation strategy ( $\beta = .34, p = .005$ ).

#### Learning strategies in difficult interracial interactions.

We expected that the more participants held entity (fixed) theories of racial bias, the less they would endorse both direct and indirect learning strategies in difficult interracial interactions. Consistent with predictions, the more entity-oriented participants were, the less likely they were to endorse strategies for both direct learning ( $r = -.34, p = .004$ ) and indirect learning ( $r = -.26, p = .03$ ) in difficult interracial interactions. To verify that the observed correlations were not due to prejudice, we conducted regression analyses predicting each strategy from lay theories of racial bias and Attitudes Toward Blacks Scale scores. In these analyses, lay theories of racial bias remained a significant predictor of direct learning strategies ( $\beta = -.27, p = .02$ ) and a marginally significant predictor of indirect learning strategies ( $\beta = -.16, p = .13$ ).

## Discussion

Study 1 showed that those who endorsed a greater entity (fixed) theory of racial bias were less likely to want feedback on how to become less biased and more likely to believe the salience of race makes interracial interactions go poorly. In addition, in difficult interracial interactions, those who more strongly endorsed an entity theory of racial bias reported that they had (a) less desire to learn what went wrong (learning strategy), (b) less desire to take the other person's perspective (learning strategy), (c) a greater desire to overcompensate by smoothing over any problems (performance strategy), and (d) a greater desire to exit the interaction (performance strategy). These effects largely existed above and beyond the influence of explicit prejudice. As a whole, these data provide evidence that lay theories of racial bias not only vary between individuals but also predict different approaches to managing difficult interracial interactions.

### Study 2

Study 1 demonstrated that lay theories of racial bias predict Whites' preferences for learning or performance strategies in difficult interracial interactions. To further examine the causal relationship between lay theories of racial bias and learning and performance strategies in difficult interracial interactions, in Study 2, we manipulated Whites' lay theories of bias.

## Method

**Participants.** Fifty-three White participants completed this study in class in exchange for extra credit. Eight participants did not follow directions and skipped the manipulation with the news-

paper story and writing task, advancing directly to the questionnaire portion of the study. These participants were excluded from the data set, leaving 45 participants (39 women, five men, one did not indicate sex).

**Procedure.** Participants were randomly assigned to receive a newspaper article describing racial bias as fixed or malleable (adapted from previous lay theories of intelligence research, described in more detail below). After reading the article, participants were asked to write a few sentences about an experience they have had that was consistent with the article. Participants then responded to a series of questions regarding strategies they would use in interracial interactions. Finally, as a manipulation check, participants completed the lay theories of racial bias measure. A subsequent class debriefing informed participants that the articles were not real and emphasized that researchers have not found conclusive evidence for either the malleable or the fixed nature of racial bias but that holding these beliefs does correspond with majority group members' behavioral intentions in intergroup interaction.

#### Materials.

**Lay theories manipulation.** We created two versions of an article ostensibly from the *Psychology Today* website. This article was modeled directly from the materials used by Nussbaum and Dweck (2008) to manipulate lay theories of intelligence. The entity (fixed) version of the article emphasized that bias is difficult to change over the course of one's life. For example, it stated, "in most of us, by the age of ten, our racial bias has set like plaster and will never soften again." The incremental (malleable) version of the article emphasized that bias can change throughout one's life with new experience. For example, it stated, "in most of us, our racial bias changes as we develop, meet new people, and are exposed to new ways of thinking."

**Lay theories of racial bias manipulation pilot study.** The manipulation of lay theories of racial bias should place participants into entity or incremental mindsets regarding racial bias. These articles should not change participants' levels of prejudice or their motivations to respond without prejudice. That is, although one's personal lay theories of racial bias should be correlated with prejudice and motivations to respond without prejudice, these manipulations are designed to manipulate lay theories only. To verify that the lay theories of racial bias manipulation does not merely change levels of prejudice, we randomly assigned 19 students (12 women) to receive the incremental or entity version of the newspaper article. Participants then completed the Internal and External Motivation to Respond Without Prejudice Scales (Plant & Devine, 1998) using a 9-point response scale (1 = *strongly disagree*, 9 = *strongly agree*) and two subscales (Social Distance and Affective Reactions) from the Attitudes Toward Blacks Scale (Brigham, 1993) using a 6-point response scale (1 = *strongly disagree*, 6 = *strongly agree*).

As expected, participants receiving the entity manipulation reported similar levels of internal motivation to respond without prejudice ( $M = 7.38, SD = 1.43$ ) compared with those receiving the incremental manipulation ( $M = 7.22, SD = 1.33$ ),  $t(17) = 0.25, p = .81$ . In addition, participants receiving the entity manipulation reported similar levels of external motivation to respond without prejudice ( $M = 5.44, SD = 1.73$ ) compared with those receiving the incremental manipulation ( $M = 4.98, SD = 2.01$ ),  $t(17) = 0.54, p = .60$ . Also consistent with predictions, participants receiving the entity manipulation ( $M = 2.23, SD = 0.76$ )

reported similar scores on the Attitudes Toward Blacks Scale compared with those receiving the incremental manipulation ( $M = 2.44$ ,  $SD = 0.70$ ),  $t(17) = -0.62$ ,  $p = .55$ . Thus, the results from the pilot study suggest that the lay theories manipulations do not produce differences in prejudice levels or motivations to respond without prejudice.

#### Measures.

**Strategies used in difficult interracial interactions.** Participants were asked to imagine being in an interracial interaction that was not going well. Next, participants were asked to report the extent to which they would engage in learning behaviors (four items, e.g., “ask what the other person is thinking,” “take the perspective of the other person”;  $\alpha = .72$ ) and performance behaviors (four items, e.g., “try to get out of the interaction as quickly as possible,” “try to pretend that the interaction is going well”;  $\alpha = .69$ ). All items were anchored at 1 (*not at all*) and 6 (*a great deal*).

**Lay theories manipulation check.** Participants completed the three-item measure of lay theories of racial bias used in Study 1 ( $\alpha = .81$ ), anchored at 1 (*strongly disagree*) and 6 (*strongly agree*).

## Results

**Lay theories manipulation check.** Participants randomly assigned to read a newspaper article on the fixed nature of racial bias reported believing that racial bias is more fixed ( $M = 2.97$ ,  $SD = 0.88$ ) than participants randomly assigned to read a newspaper article on the malleable nature of racial bias ( $M = 2.47$ ,  $SD = 0.71$ ),  $t(43) = 2.18$ ,  $p = .04$ ,  $d = 0.63$ . Thus, consistent with previous lay theories research, a newspaper article served to manipulate participants’ lay theories of racial bias (e.g., Chiu, Hong, & Dweck, 1997; Hong et al., 1999; Nussbaum & Dweck, 2008; Rattan & Dweck, 2010).

**Strategies used in difficult interracial interactions.** We predicted that participants in the incremental (bias is malleable) condition would favor learning strategies over performance strategies

and that participants in the entity (bias is fixed) condition would favor performance strategies over learning strategies. Thus, we conducted a 2 (lay theory of racial bias manipulation: entity/incremental, between participants)  $\times$  2 (strategy endorsement: learning/performance, within participants) mixed-factor analysis of variance (ANOVA).

As expected, a significant interaction emerged between the lay theories manipulation and strategy endorsement,  $F(1, 43) = 7.68$ ,  $p = .008$ ,  $\eta_p^2 = .15$  (main effects of lay theories and strategy endorsement were not significant,  $F_s < 1$ ). See Figure 1.

Consistent with predictions, simple effects tests reveal that participants who received the entity manipulation endorsed performance strategies ( $M = 3.94$ ,  $SD = 0.87$ ) more than those who received the incremental manipulation ( $M = 3.40$ ,  $SD = 0.84$ ),  $F(1, 43) = 4.37$ ,  $p = .043$ ,  $\eta_p^2 = .09$ . In contrast, participants who received the incremental manipulation endorsed learning strategies ( $M = 3.94$ ,  $SD = 0.80$ ) more than did participants who received the entity manipulation ( $M = 3.45$ ,  $SD = 0.86$ ),  $F(1, 43) = 3.89$ ,  $p = .055$ ,  $\eta_p^2 = .08$ . To examine the preferred strategies within the manipulations, we ran simple effects tests, which revealed that participants who received the entity manipulation marginally preferred performance strategies to learning strategies,  $F(1, 43) = 3.11$ ,  $p = .085$ ,  $\eta_p^2 = .07$ , and participants who received the incremental manipulation preferred learning strategies to performance strategies,  $F(1, 43) = 4.78$ ,  $p = .034$ ,  $\eta_p^2 = .10$ .

## Discussion

By manipulating participants’ beliefs that racial bias is malleable or fixed, Study 2 provides additional evidence for the role of lay theories of racial bias in majority group members’ preferred strategies for difficult interracial interactions. As hypothesized and consistent with Study 1, participants led to believe racial bias was fixed subsequently preferred performance strategies to learning strategies for managing a difficult interracial interaction. However, participants led to believe racial bias was malleable subsequently preferred learning strategies to performance strategies.

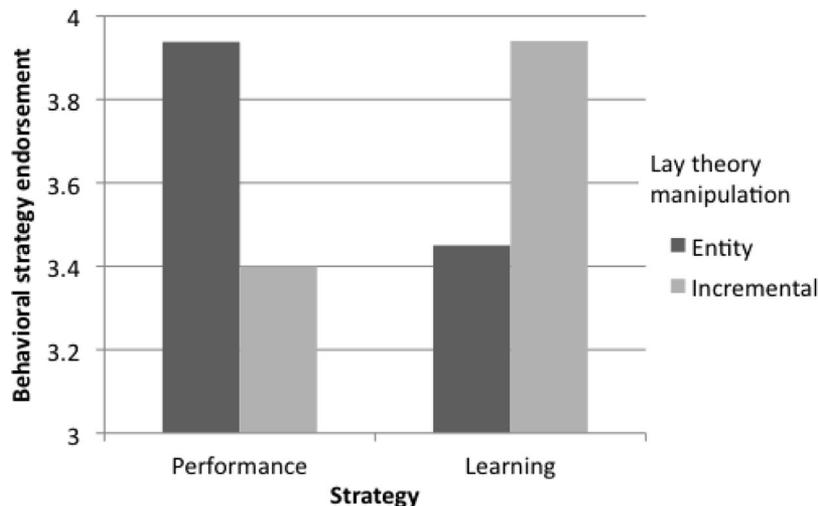


Figure 1. Performance and learning strategy endorsement for difficult interracial interactions as a function of manipulated lay theories of racial bias (Study 2).

One limitation of Studies 1 and 2 is a focus only on difficult interracial interactions and the assumption, based on previous lay theories research, that these situations would be the most likely to elicit differential behavioral preferences as a function of lay theories of racial bias. Another limitation across these studies is that participants were asked to imagine being in difficult interracial interactions as opposed to believing that they were actually part of a difficult interracial interaction. With Studies 3 and 4, we aimed to address these weaknesses.

### Study 3

Studies 1 and 2 established that people vary in their lay theories of racial bias and that this variability predicts the type of strategies preferred for managing difficult interracial interactions. Study 3 builds on these findings in several ways. First, Study 3 moves beyond the realm of a hypothetical interaction to examine whether lay theories of racial bias predict anticipated strategies for an interracial interaction that participants believe to be real.

Second, Studies 1 and 2 focus on difficult interracial interactions (participants reported strategies for managing a difficult interracial interaction and beliefs about what makes interracial interactions go poorly) because previous research has found that lay theories influence behavior in difficult, challenging situations that can be construed as providing some diagnostic information (e.g., Erdley et al., 1997; Molden & Dweck, 2006). We similarly expected that implicit theories of racial bias would primarily guide behavior in difficult interracial interactions. Interracial interactions anticipated to be difficult are especially likely to provoke stress and anxiety for majority group members (e.g., Pearson et al., 2008; Plant, 2004; Plant & Butz, 2006; Shelton, 2003; Shelton et al., 2010). This is often the case because difficult interracial interactions make salient the possibility of appearing racist and therefore being rejected (e.g., Bergsieker et al., 2010; Shelton et al., 2006; Vorauer, 2006; Vorauer et al., 2000). Whereas Studies 1 and 2 focused participants only on difficult interracial interactions, in the present study, we manipulated whether the interaction was difficult or neutral.

Third, Studies 1 and 2 measured or manipulated lay theories at the same time as the outcome variables (performance and learning strategies), creating the possibility that the measurement of lay theories primed strategy endorsement. To rule out this potential confound, in the present study, we recruited participants on the basis of their lay theories measured during a mass-testing questionnaire eight to 13 weeks prior to study participation.

Last, we included as covariates in the present study the measure of prejudice used in Study 1 (Attitudes Toward Blacks Scale; Brigham, 1993) as well as the measures Internal Motivation to Respond Without Prejudice (a motivation to respond without prejudice due to the importance of egalitarianism to one's self-concept) and External Motivation to Respond Without Prejudice (a motivation to respond without prejudice due to a fear of social sanction; Plant & Devine, 1998).

### Method

**Participants.** Seventy-eight White students (43 women, 33 men, two did not indicate their sex) participated online in exchange for course credit. Participants were recruited on the basis of their

lay theories of racial bias, measured as part of an online mass-testing questionnaire conducted eight to 13 weeks prior to the study. The lay theories measure ( $\alpha = .86$ ) consisted of four items. This included two items from the scales used in Studies 1 and 2 ("People have a certain amount of racial bias and they really can't do much to change it," "A person's racial bias is something basic about them and they can't change it much") and two additional items based on items from Dweck (1999) that tap incremental theories and are reverse scored ("People can always substantially change their racial bias," "Everyone, no matter who they are, can significantly change their level of racial bias"). The scale was anchored at 1 (*strongly disagree*) and 6 (*strongly agree*). Participants from the incremental range (2–3) and the entity range (4–5) were recruited. Participants were unaware of the recruitment criteria.

**Design.** Participants were randomly assigned to anticipate either a neutral or a difficult interracial encounter and were asked to respond to questions regarding performance and learning strategies. The design of the study was a 2 (lay theory of racial bias: incremental/entity; between participants)  $\times$  2 (difficulty of interaction: neutral/difficult; between participants)  $\times$  2 (strategy endorsement: performance/learning; within participants).

**Procedure.** Participants were recruited via e-mail invitation to participate in a study of "interacting online." Participants completed the study online. To create the impression that an interaction would occur, we told participants that they could only participate between the hours of 8 a.m. and 10 p.m. over the course of 2 days so that they could be matched with an interaction partner. When they accessed the website, participants were told the researchers were "interested in how people from different racial and ethnic groups interact online," that the researchers recruited people from several different groups (Caucasian Americans, African Americans, Mexican Americans, and Asian Americans) to take part in online interactions, and that they would be assigned a same-sex partner from a different racial or ethnic group. Participants were informed they would discuss topics of their choosing with their partner.

Participants were then asked to provide information to share with their partner. This included their first name, age, year, major, race/ethnicity, and gender. Participants were also asked if they wanted their partner to know anything for the upcoming interaction. After submitting this information, participants were asked to patiently wait while the computer matched them with a partner. An icon of circling dots spun on the screen for 25 s and then advanced to show information about their ostensible partner. All participants received information about a gender-matched student (James/Jessica) who was 19 years old, a freshman business major, and African American.

The difficulty manipulation consisted of the partner's response to the open-ended question, "do you want your partner to know anything for the upcoming interaction?" Those participants in the difficult interaction condition saw, "I guess I'm ready to try this, though honestly I'm concerned about the interracial interaction part of it—I've had enough of those already to know they don't always go very well." Participants in the neutral expectancy condition saw only, "I guess I'm ready to try this."

Next, participants were told the researchers wanted to know a little bit more about their expectations for the upcoming interaction and that this information would remain confidential and not be

shared with their partner. Participants were advanced to the focal dependent variables, described in more detail below. After participants completed these measures, they were probed for suspicion regarding the hypotheses, the interaction partner, and whether they expected the interaction to occur.<sup>3</sup> Next, participants were informed that the study was over; after debriefing, participants were given the option to decline to have their data used for the study; one participant did so and thus is not included in the sample.

### Measures.

**Performance and learning strategies.** Performance and learning strategies were measured with the same items used in the previous studies. Participants were asked to report the extent to which they anticipated they would “do the following during the interaction.” Participants were given a list of strategies. Performance strategies (specifically, escape strategies: “Get out of the interaction as quickly as possible” and “End the interaction”;  $r = .53, p < .001$ ) and learning strategies (“Ask what your partner is thinking” and “Empathize with your partner”;  $r = .32, p = .006$ ) were measured with two items each and were anchored at 1 (*not at all*) and 7 (*a lot*). To reduce suspicion, the performance and learning strategies were embedded in a set of irrelevant items, including, for example, participants’ anticipated topics of conversation (“Talk about classes,” “Talk about sports”).

**Covariates.** Participants completed the Attitudes Toward Blacks subscales used in Study 1 ( $\alpha = .79$ ), as well as the Internal and External Motivations to Respond Without Prejudice Scales ( $\alpha_s = .76$  and  $.79$ , respectively; Plant & Devine, 1998).

## Results

For comprehensiveness, we report raw means in the text and use the estimated marginal means from covariate analyses in Figure 2. We hypothesized that participants’ lay theories of racial bias would differently predict their anticipated behavioral strategies when the interaction was expected to be difficult, such that incremental theorists would prefer learning strategies to performance strategies and entity theorists would prefer performance strategies to learning strategies. In contrast, we did not anticipate participants’ lay theories of racial bias to predict their behavioral strategies when there was no reason to expect the interaction to be difficult.

To test this, we conducted a 2 (lay theory of racial bias: entity/incremental; between participants)  $\times$  2 (interaction difficulty: neutral/difficult; between participants)  $\times$  2 (strategy endorsement: performance/learning; within participants) mixed-factor ANOVA.<sup>4</sup> As anticipated, the Lay Theories  $\times$  Interaction Difficulty  $\times$  Strategy Endorsement ANOVA yielded a significant three-way interaction,  $F(1, 74) = 6.08, p = .02, \eta_p^2 = .08$  (see Figure 2). There were no main effects of lay theories, interaction difficulty, or strategy endorsement, all  $F_s < 2.10, p_s > .15$ . Also as anticipated, in the neutral interaction condition, the two-way interaction between lay theories and strategy endorsement was not significant,  $F < 1$ ; there was only a main effect of lay theories such that incremental theorists were more likely than entity theorists to endorse both performance and learning strategies,  $F(1, 74) = 5.52, p = .02, \eta_p^2 = .07$  (main effect of strategy,  $F < 1$ ).

In contrast, and consistent with Studies 1 and 2, the two-way interaction between lay theories and strategy endorsement was significant in the difficult interaction condition,  $F(1, 74) = 8.86, p = .004, \eta_p^2 = .11$  (there were no main effects of lay theories or

strategy endorsement,  $F_s < 1$ ). More specifically, as hypothesized, when the interaction was difficult, incremental theorists preferred learning strategies ( $M = 3.97, SD = 1.41$ ) to performance strategies ( $M = 3.24, SD = 1.06$ ),  $F(1, 74) = 3.97, p = .050, \eta_p^2 = .05$ , and entity theorists preferred performance strategies ( $M = 4.12, SD = 1.10$ ) to learning strategies ( $M = 3.26, SD = 1.08$ ),  $F(1, 74) = 4.76, p = .032, \eta_p^2 = .06$ . Further examination reveals that, consistent with the previous studies, performance strategies were more likely to be endorsed by entity theorists compared with incremental theorists,  $F(1, 74) = 6.59, p = .012, \eta_p^2 = .08$ , and learning strategies tended to be endorsed marginally more by incremental theorists than by entity theorists,  $F(1, 74) = 3.18, p = .079, \eta_p^2 = .04$ .

## Discussion

Study 3 demonstrated that interracial interactions perceived to be genuine—that is, situations in which White participants believed that they were interacting with a Black research participant—yielded the same outcomes as Studies 1 and 2 regarding participants’ anticipated strategy use. Specifically, incremental theorists (participants who believed that racial bias is malleable) preferred learning strategies to performance (escape) strategies and entity theorists (participants who believed that racial bias was fixed) preferred performance strategies to learning strategies.

Additionally, in Study 3, we manipulated the difficulty of the interaction. As suggested by previous research on lay theories, only when interracial interactions were expected to be difficult did lay theories of racial bias differentially predict performance and learning strategy endorsement. And finally, whereas Studies 1 and 2 measured participants’ lay theories of racial bias at the same time as participants’ behavioral intentions, Study 3 assessed participants’ lay theories of racial bias between eight and 13 weeks prior to the study. This both suggests some stability of lay theories of

<sup>3</sup> The suspicion probe consisted of three open-ended questions asking participants about the topic and purpose of the study and their expectations for the interaction. Six participants indicated that they did not think the interaction was going to take place or did not believe there was a real interaction partner (e.g., “I don’t think it’s real”). As a result, the data from these six participants were not included in the analyses. However, if these participants are included in the analyses, the same pattern of data emerges.

<sup>4</sup> The pattern of data reported here is not driven by participant prejudice. Replicating the trend from Study 1, entity theorists were marginally more prejudiced ( $M = 2.67, SD = 0.73$ ) than were incremental theorists ( $M = 2.36, SD = 0.80$ ),  $t(76) = 1.81, p = .074, d = 0.40$ , as measured by the Attitudes Toward Blacks Scale. In addition, entity theorists were less internally motivated to respond without prejudice ( $M = 6.18, SD = 1.40$ ) than were incremental theorists ( $M = 6.98, SD = 1.31$ ),  $t(76) = 2.59, p = .011, d = 0.59$ . However, entity theorists were no more externally motivated to respond without prejudice ( $M = 4.36, SD = 1.50$ ) than were incremental theorists ( $M = 4.76, SD = 1.70$ ),  $t(76) = 1.11, p = .272, d = 0.25$ . An analysis of covariance with lay theory (entity vs. incremental) and interaction difficulty (neutral vs. difficult) as between-participants factors, strategy endorsement (perform vs. learn) as a within-participants factor, and Internal Motivation to Respond Without Prejudice, External Motivation to Respond Without Prejudice, and Attitudes Toward Blacks Scale scores as covariates yielded the same pattern of results as the analyses that do not include these covariates. Thus, prejudice-related constructs do not account for the effect of lay theories observed here.

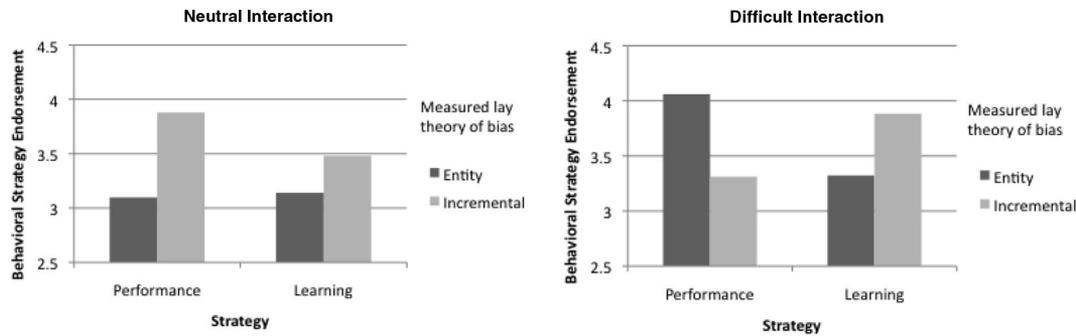


Figure 2. Entity and incremental theorists' strategy endorsement (learning vs. performance) as a function of interaction difficulty (neutral vs. difficult) in Study 3 (controlling for Attitudes Toward Blacks and Internal and External motivations to Respond Without Prejudice Scale scores).

racial bias over time and rules out any alternative explanations for Studies 1 and 2 that would rely on priming of lay theories.

### Study 4

Study 4 served several aims. Primarily, in Study 4, we examined whether lay theories of racial bias predict actual performance and learning strategies in a difficult interracial interaction. Our second aim in Study 4 was to explore how entity and incremental theorists' behaviors in a difficult race-related interaction differ when their interaction partner is Black (intergroup interaction) or White (intragroup interaction). White and Black interaction partners might differently elicit performance and learning strategies in difficult race-related contexts. That is, if one's goal is to learn how or why one may have appeared racially biased to an interaction partner, then learning strategies (e.g., trying to learn more about one's partner, perspective taking) might be similarly engaged with a White or Black interaction partner. However, if one's goal is to demonstrate that one is unbiased, performance strategies may be more difficult with a White compared with a Black interaction partner. For example, one might be nicer than usual to a Black interaction partner as a strategy to demonstrate lack of racial bias. In contrast, a White person being nicer than usual to a White interaction partner may demonstrate that one is nice to other ingroup members but not necessarily communicate lack of bias toward outgroup members. Thus, the present study provides an opportunity to explore how lay theories of racial bias guide performance and learning strategies in inter- and intragroup contexts.

Finally, our third aim in Study 4 was to expand beyond participants' own perceptions and evaluations of their behaviors to examine both actual behaviors in an interaction and whether an interaction partner might perceive differences in entity and incremental theorists' behaviors. Thus, White participants interacted with either a Black or a White confederate. Confederates were not only unaware of the hypotheses and the concept of lay theories of racial bias, but they also were not aware that participants were being recruited as a function of an individual difference on a psychological variable. Thus, confederate responses served as an objective measure of the types of behaviors participants were actually engaging in as a function of lay theories of racial bias. That is, if confederates reported that participants behaved differently as a function of lay theories, this would serve as additional

evidence that lay theories of racial bias do facilitate different behavioral strategies in difficult interracial interactions.

Thus, confederate observers in the present study offered an opportunity to assess verbal and nonverbal behaviors associated with lay theories of racial bias. Recent research suggests that when Whites adopt performance goals in interracial interactions, they become more self-focused and exert more self-control to appear nonbiased (see Migacheva, Tropp, & Crocker, 2011). As a consequence, performance goals may lead Whites to be less nonverbally engaged (e.g., making less eye contact) even when they are explicitly attentive to their interaction partner. This is consistent with previous research demonstrating that explicit and nonverbal behaviors in intergroup interaction may not correspond because individuals are often less aware of their nonverbal behaviors and less likely to monitor their nonverbal behaviors (e.g., Dovidio et al., 2002; King, Shapiro, Hebl, Singletary, & Turner, 2006). Therefore, confederates evaluated participants' nonverbal engagement (nodding, eye contact) and explicit engagement. We anticipated that participants with an entity theory of racial bias (those likely to adopt performance goals) would continue to overcompensate, as we have seen in the past studies, by exerting extra effort to appear engaged in the interaction (appear generally less distracted and more engaged to confederates) but would show more negative nonverbal indicators of engagement (less nodding, less eye contact; Hebl, Foster, Mannix, & Dovidio, 2002; King et al., 2006).

### Method

**Participants.** Forty-six White students (19 women) participated in exchange for course credit and \$2. As in Study 3, participants were recruited on the basis of their lay theories of racial bias, measured as part of an online mass-testing questionnaire conducted seven to 14 weeks prior to the study. The lay theories measure and recruitment were identical to those of Study 3.

**Design.** Participants were randomly assigned to interact with either a Black or a White male confederate, producing a 2 (lay theory of racial bias: incremental/entity, between participants)  $\times$  2 (confederate race: Black/White, between participants) design. Confederates were two Black males and two White males. Confederates were unaware of the hypotheses and were not aware that the participants were recruited as a function of an individual difference on a psychological variable. Confederates memorized a

standardized script and were instructed to use their normal mannerisms in all interactions. Each confederate underwent formal training (including practice interactions with an interaction partner) to ensure that he had committed the script to memory and behaved in the same way during all interactions. All confederates were evaluated prior to participating in any experimental sessions to ensure that their behavior was standardized. Although the confederates' behaviors were standardized throughout the study, the participants' behaviors were not. This allowed for flexibility in how participants responded to the confederate.

**Procedure and measures.** Participants were recruited via e-mail invitation to a study of "decision games." The waiting area for the study consisted of five chairs in a row. To make the confederate appear to be a credible participant and to help make the computer-mediated portion of the interaction seem real, the confederate always arrived to the waiting area 10 min prior to the experimental session and sat in the middle chair. Thus, participants always saw the confederate and had evidence that a real person existed. The confederate always had earphones in his ears and read the university's student newspaper (this was to reduce the likelihood that participants would talk with the confederate prior to the session). Participants were greeted by a White female experimenter and told they would be paired with another participant for the duration of the study session. Participants were informed that the study consisted of two parts: a computer-mediated and an in-person interaction with their partner.

**Part 1: Computer-mediated interaction.** Participants were introduced to the study with onscreen instructions that explained the researchers were interested in how computer-based communication compares with face-to-face interactions. Participants were told that they would complete both types of interactions and answer questions about these experiences. Participants learned that via random (in reality, fixed) assignment they would lead the first part of the conversation (the computer-mediated interaction) and their partner was assigned to lead the second part of the conversation (the in-person interaction).

To make the computer-mediated communication between the participant and his or her partner feel real and spontaneous to participants, the research assistant typed "Are you there?" into a text box on the participant's computer labeled "connection test." The screen showed "Waiting for partner responses" with a series of moving ellipses for 5 s. The screen then showed their partner's supposed response, "Yup, I'm here." Experimenters told participants to proceed with the computer-mediated interaction and then exited the room.

Participants were asked to share basic information about themselves with their partner (first name, gender, age, race, year in school, major, hobbies, and plans after graduation), one question at a time. After the participant answered each question, a series of moving ellipses appeared for several seconds until his or her partner's responses to the same questions appeared on the screen. Participants were free to respond to all questions as they wished. In contrast, the confederate's responses to each of these questions were programmed to standardize their portion of the interaction. All participants received the same information from their partner with the exception of race, which was programmed to match the confederate's race (Black or White).

The next part of the interaction allowed us to make the interaction challenging for participants. All participants learned that they

would discuss affirmative action in college admissions over the computer (the interaction in which the participant was the leader). We chose this typically race-related topic because expressing support or disapproval of affirmative action is ambiguous in revealing racial bias. As a result, whatever the participant wrote, it was feasible that the interaction partner could in response become uncomfortable, making this interaction difficult.

Participants were told that to start the conversation, they should write a few sentences about their stance on affirmative action. After participants sent their stance on affirmative action to their partner, participants were asked to indicate how they thought the interaction was going so far, how well they expected the rest of the interaction to go (both anchored at 1 = *not at all well*, 7 = *very well*), and how comfortable they felt with their interaction partner (1 = *very uncomfortable*, 7 = *very comfortable*). Participants were informed beforehand that these ratings would be sent to their partner. After ostensibly sending the responses to these questions to their partner, the computer indicated that it was receiving the responses from their partner. After a short delay, the computer posted the partner's supposed responses of 2, 3, and 2, respectively, on the items above, conveying that the partner did not expect the interaction to go well and was uncomfortable in the interaction.

**Learning strategy endorsement.** After learning their partner did not think the interaction was going well and that he was uncomfortable, participants, as the discussion leaders, were asked to express their opinion on whether the interaction would involve learning more about each other. Participants responded to six items using a Likert-type scale (1 = *not at all*, 7 = *very much*) measuring their interest in learning more about their partner and self-disclosing to their partner (e.g., "I would like to ask my partner about their thoughts and feelings,"  $\alpha = .84$ ).

**Part 2: In-person interaction.** After the participant completed the computer portion of the study, the experimenter brought the confederate to the participant's room. The participant's room was set up so that the confederate and participant were facing each other. Because the confederate was ostensibly randomly assigned to lead the in-person discussion, the experimenter handed the confederate a piece of paper with five questions on "pressing issues at the university."<sup>5</sup> The confederate was instructed to ask the participant each question, one at a time. The participant was instructed to answer each question to the best of his or her ability.

**Participants' postinteraction strategy assessment.** After the interaction, participants completed questions regarding the extent to which they used different strategies during the in-person interaction, including four items to assess *performance strategies* (e.g., "Try to get out of the interaction as quickly as possible," "Try to appear nice";  $\alpha = .69$ ) and five items to assess *learning strategies* (e.g., "Try to learn about your interaction partner," "Try to take the perspective of the other person";  $\alpha = .85$ ).

<sup>5</sup> The inclusion of five questions allowed for standardization of the interaction length.

Participants then answered questions so that we could assess their suspicion about their partner, the study, and the cover story.<sup>6</sup> Finally, participants completed a set of items to be used as covariates. Prejudice was measured by the Social Distance and Affective Reactions subscales of the Attitudes Toward Blacks Scale ( $\alpha = .74$ ) and the Modern Racism scale (sample item: “Over the past few years, Blacks have gotten more economically than they deserve”; McConahay, Hardee, & Batts, 1981;  $\alpha = .55$ ). Participants also completed the Internal and External Motivations to Respond Without Prejudice Scales ( $\alpha$ s = .85 and .86, respectively). In addition, consistent with previous intergroup interaction research (e.g., Plant, Devine, & Peruche, 2010), participants completed the Interaction Anxiousness Scale (Leary, 1983;  $\alpha = .90$ ). This measure has been used as a covariate in intergroup interaction research to control for participants’ general levels of anxiety regarding interacting with others. Participants were then informed that the study was over and were fully debriefed.

*Confederate postinteraction strategy assessment.* After the in-person interaction, the confederates evaluated the participant’s nonverbal engagement with two items assessing the extent to which their partner nodded and made eye contact (0 = *not at all*, 6 = *very much*) and the participant’s explicit engagement with two items: “How engaged was your interaction partner?” and “How distracted was your interaction partner?” (reverse scored, 0 = *not at all*, 6 = *very much*). To directly compare the use of nonverbal and explicit engagement, we  $z$  scored these items.

## Results

As in Study 3, for comprehensiveness, we report raw means in the text and use the estimated marginal means from covariate analyses in the figures.<sup>7</sup>

**Learning strategy use in the computer-mediated interaction.** We anticipated that in a difficult interaction, incremental (compared with entity) theorists of racial bias would engage in more learning-oriented behaviors with a Black interaction partner, leading to a greater desire to ask more personal questions of their interaction partner and to self-disclose more to their partner. To test this, we conducted a 2 (lay theory of racial bias: entity/incremental)  $\times$  2 (confederate race: Black/White) ANOVA with learning strategy use in the computer-mediated interaction as the dependent variable. There were no main effects of either lay theories,  $F(1, 42) = 2.01, p = .16, \eta_p^2 = .05$ , or confederate race,  $F < 1, p = .61, \eta_p^2 = .01$ . However, consistent with expectations, there was a significant interaction between lay theories and confederate race,  $F(1, 42) = 13.83, p = .001, \eta_p^2 = .25$  (see Figure 3).

When interacting with a White confederate in a difficult race-related interaction, incremental and entity theorists were similarly interested in learning about their interaction partner (incremental theorist  $M = 2.68, SD = 1.14$ ; entity theorist  $M = 3.40, SD = 0.73$ , respectively),  $F(1, 42) = 2.54, p = .12, \eta_p^2 = .06$ . However, consistent with findings from Studies 1–3, when interacting with a Black confederate in a difficult race-related interaction, incremental theorists showed a greater desire to learn about their partner ( $M = 3.68, SD = 1.37$ ) than did entity theorists ( $M = 2.08, SD = 0.85$ ),  $F(1, 42) = 13.80, p = .001, \eta_p^2 = .25$ .

**Participants’ strategy use during the in-person interaction.** Participants rated the extent to which they used learning and performance strategies during the in-person interaction. We con-

ducted a 2 (lay theory of racial bias: entity/incremental; between-participants)  $\times$  2 (confederate race: Black/White; between-participants)  $\times$  2 (strategy endorsement: performance/learning; within-participants) mixed-factor ANOVA. No main effects of lay theory or confederate race emerged ( $F$ s  $< 1$ ). There was a significant main effect of strategy endorsement,  $F(1, 42) = 63.71, p < .001, \eta_p^2 = .60$ , whereby performance strategies ( $M = 3.35, SD = 1.00$ ) were reported to a greater extent than were learning strategies ( $M = 2.06, SD = 1.02$ ). There was also a two-way interaction between confederate race and strategy endorsement,  $F(1, 42) = 8.48, p = .006, \eta_p^2 = .17$ . No other two-way effects emerged. It is important to note that the observed main and two-way effects were qualified by the predicted three-way interaction between lay theory, confederate race, and strategy endorsement,  $F(1, 42) = 13.04, p = .001, \eta_p^2 = .24$ .

To understand the three-way interaction, we separately examined the two-way interaction of lay theories and confederate race within performance and learning strategies to compare strategy use between Black and White confederate interaction partners (see Figure 4). Within performance strategies, the Lay Theories  $\times$  Confederate Race ANOVA produced no main effect of lay theories ( $F < 1$ ). A main effect of confederate race emerged by which performance strategies were endorsed more with a Black ( $M = 3.67, SD = 1.00$ ) compared with a White ( $M = 3.00, SD = 0.89$ ) confederate,  $F(1, 42) = 6.01, p = .02, \eta_p^2 = .13$ . Although the interaction between lay theories and confederate race was not significant,  $F(1, 42) = 2.39, p = .13, \eta_p^2 = .05$ , consistent with previous studies and the hypothesis that entity theorists overcompensate in difficult interracial interactions, simple effects comparisons reveal that entity theorists reported using more performance strategies with a Black confederate ( $M = 3.79, SD = 0.93$ ) compared with a White confederate ( $M = 2.68, SD = 0.76$ ),  $F(1, 42) = 7.93, p = .007, \eta_p^2 = .16$ . This pattern did not emerge for

<sup>6</sup> The suspicion probe occurred before the measurement of prejudice covariates to ensure that any participant comments regarding the confederate or race would be generated by the participants’ suspicion. During the suspicion probe, four participants indicated that the confederate was not a naive participant and two reported that they believed the computer portion of the study was not real. As a result, the data from these six participants were not included in the analyses. However, if these participants are included in the analyses, the same pattern of data emerges.

<sup>7</sup> Consistent with the previous studies, incremental theorists of racial bias were significantly less prejudiced than entity theorists of racial bias as measured by both the Attitudes Toward Blacks Scale (incremental theorist  $M = 1.77, SD = 0.61$ ; entity theorist  $M = 2.52, SD = 0.69$ ),  $t(44) = 3.92, p < .001$ , and the Modern Racism scale (incremental theorist  $M = 1.86, SD = 0.39$ ; entity theorist  $M = 2.27, SD = 0.64$ , respectively),  $t(44) = 2.60, p = .013$ . There were no significant differences between incremental and entity theorists’ Internal Motivation to Respond Without Prejudice Scale scores (incremental theorist  $M = 7.27, SD = 1.60$ ; entity theorist  $M = 6.57, SD = 1.52$ ),  $t(44) = 1.51, p = .14$ , or External Motivations to Respond Without Prejudice Scale scores (incremental theorist  $M = 4.59, SD = 1.95$ ; entity theorist  $M = 5.15, SD = 1.89$ ),  $t(44) = 0.98, p = .33$ . Interaction Anxiousness Scale scores did not differ between incremental and entity theorists (incremental theorist  $M = 2.79, SD = 0.74$ ; entity theorist  $M = 2.86, SD = 0.73$ , respectively),  $t(44) = 0.35, p = .73$ . As in Study 3, when the analyses reported in this section are conducted as analyses of covariance with all covariates included in the model, the patterns of results do not differ from those reported in the text.

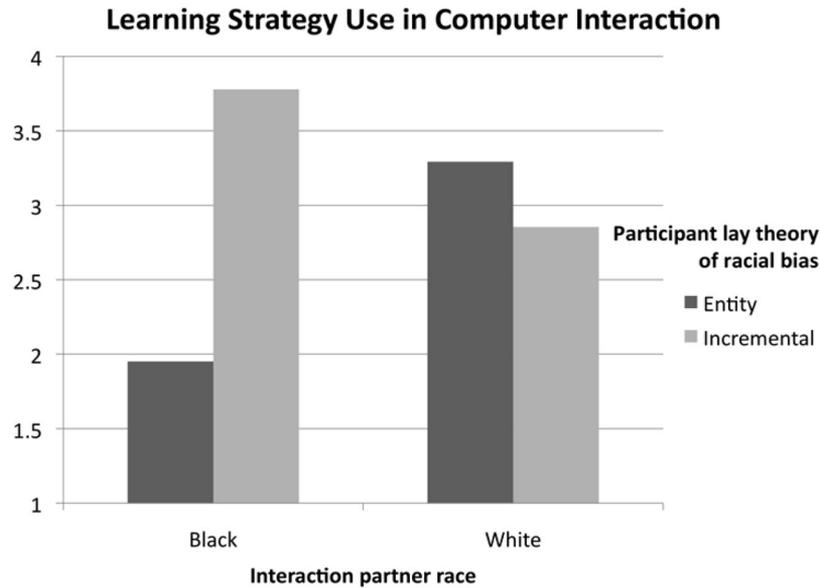


Figure 3. Difference in learning strategy use (expressed desire to be asked questions of oneself and to ask questions of one's partner) during the computer interaction as a function of confederate race (Black vs. White) and lay theory of racial bias (entity vs. incremental) in Study 4 (controlling for Attitudes Toward Blacks Scale scores, modern racism, Internal and External Motivations to Respond Without Prejudice Scale scores, and interaction anxiousness).

incremental theorists: Simple effects comparisons showed that incremental theorists did not differ in their use of performance strategies with a Black ( $M = 3.52$ ,  $SD = 1.10$ ) versus White ( $M = 3.27$ ,  $SD = .93$ ) confederate ( $F < 1$ ).

For learning strategies, the ANOVA with lay theories and confederate race produced no main effects of lay theory or of confederate race,  $F_s < 1$ , but there was a significant interaction between lay theory and confederate race,  $F(1, 42) = 5.32$ ,  $p = .026$ ,  $\eta_p^2 = .11$ . Simple effects comparisons revealed entity theorists were less likely to report using learning strategies with the Black ( $M = 1.60$ ,  $SD = 0.55$ ) compared with the White ( $M = 2.48$ ,  $SD = 1.44$ )

confederate,  $F(1, 42) = 4.52$ ,  $p = .039$ ,  $\eta_p^2 = .10$ . Also, consistent with previous findings, when interacting with the Black confederate, incremental theorists were more likely to report using learning strategies than entity theorists,  $F(1, 42) = 5.12$ ,  $p = .034$ ,  $\eta_p^2 = .19$ . Although the trend is in the direction of incremental theorists reporting greater use of learning strategies with Black ( $M = 2.38$ ,  $SD = 1.10$ ) than with White ( $M = 1.92$ ,  $SD = 0.76$ ) confederates, this difference was not significant,  $F(1, 42) = 1.28$ ,  $p = .26$ ,  $\eta_p^2 = .03$ .

**Confederate perceptions of the participants' explicit and nonverbal engagement.** We predicted that if entity theorists overcompensate during an interracial interaction, they might exert

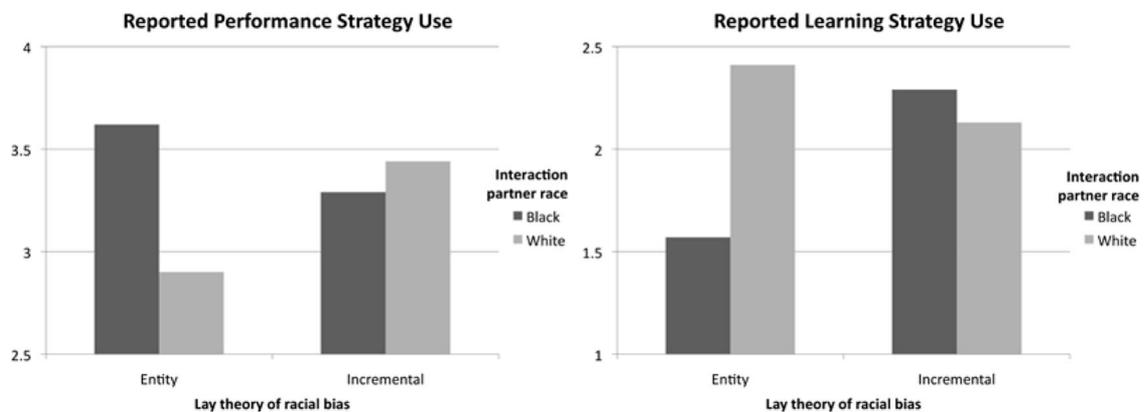


Figure 4. Retrospectively reported performance and learning strategy use during the in-person interaction as a function of confederate race (Black vs. White) and lay theory of racial bias (entity vs. incremental) in Study 4 (controlling for Attitudes Toward Blacks, Modern Racism, Internal and External Motivations to Respond Without Prejudice, and Interaction Anxiousness scores).

extra effort to appear engaged in the interaction (e.g., appear generally less distracted and more engaged to confederates; Murphy et al., 2011; Shelton, 2003) but also to exhibit more negative nonverbal indicators of engagement (e.g., less eye contact).

To test whether the patterns of explicit and nonverbal engagement were different, we subjected confederates' ratings ( $z$  scored) to a 2 (lay theory of racial bias: incremental/entity, between subjects)  $\times$  2 (confederate race: Black/White, between subjects)  $\times$  2 (engagement type: explicit/nonverbal, within subjects) mixed-factor ANOVA. A significant main effect of confederate race emerged,  $F(1, 42) = 4.57, p = .04, \eta_p^2 = .10$ , whereby participants were rated to be more engaged overall with the White confederates ( $M = .27, SD = .87$ ) compared with the Black confederates ( $M = -.24, SD = .71$ ). No main effect of lay theories emerged,  $F < 1$ . Although a marginal two-way interaction between lay theory and confederate race emerged,  $F(1, 42) = 3.17, p = .08, \eta_p^2 = .07$ , this was qualified (as predicted) by a three-way interaction between lay theories, confederate race, and engagement type,  $F(1, 42) = 9.14, p = .004, \eta_p^2 = .18$ .

We probed this three-way interaction by examining the two-way interaction of lay theory and engagement type separately within the Black and White confederate conditions. Within the White confederate condition, there were no significant main effects of engagement type,  $F(1, 20) = 3.09, p = .09, \eta_p^2 = .13$ , or of lay theory,  $F(1, 20) = 2.77, p = .11, \eta_p^2 = .12$ . Also, no significant interaction between lay theory and engagement type emerged for White confederates ( $F < 1$ ).

For the Black confederate condition, there was no main effect of lay theory ( $F < 1$ ) or of engagement type,  $F(1, 22) = 1.81, p = .19, \eta_p^2 = .08$ . However, there was a significant interaction between lay theory and engagement type,  $F(1, 22) = 12.65, p = .002, \eta_p^2 = .37$ . Simple effects comparisons revealed that Black confederates perceived no difference between incremental theorists' explicit ( $M = -.59, SD = .85$ ) and nonverbal ( $M = -.14, SD = .78$ ) engagement,  $F(1, 22) = 2.26, p = .15, \eta_p^2 = .09$ . However, consistent with a prove-and-perform approach (Murphy et al., 2011), Black confederates reported that entity theorists demonstrated significantly more explicit engagement ( $M = .35, SD = .81$ ) compared with nonverbal engagement ( $M = -.63, SD = 1.00$ ),  $F(1, 22) = 13.10, p = .002, \eta_p^2 = .37$ .

**Do performance strategies account for perceived nonverbal engagement?** Although performance goals may increase explicit engagement (Shelton, 2003), they also likely contribute to decreased nonverbal engagement (Migacheva et al., 2011). In line with this prediction, we assessed whether entity theorists' greater performance orientation during the in-person interaction might account for why Black interaction partners perceived entity theorists to be less nonverbally engaged. Specifically, we assessed the extent to which entity theorists' performance strategy use mediated the tendency for Black (compared with White) interaction partners to perceive entity theorists as less nonverbally engaged. We followed the procedures outlined by Baron and Kenny (1986) to test for mediation. For the regression analyses, we used effects codes for confederate race (Black confederate = 1, White confederate = -1). Regression analyses showed that Black confederates, compared with White confederates, perceived entity theorists to be significantly less nonverbally engaged ( $\beta = -.41, p = .05$ ). Additionally, the regression of performance strategies on confederate race confirmed that entity theorists used more performance

strategies with Black confederates than with White confederates ( $\beta = .56, p = .006$ ). Also, entity theorists' use of performance strategies predicted (less) nonverbal engagement ( $\beta = -.50, p = .02$ ). Last, when predicting nonverbal engagement from both confederate race and performance strategies, the effect of confederate race was no longer significant ( $\beta = -.19, p = .41$ ); a Sobel test for the indirect effect of performance strategies on nonverbal behavior confirmed that this reduction was significant, Sobel statistic  $Z = 2.00, p = .046$ . Entity theorists' (greater) performance strategy use fully mediated the relationship between the race of the confederate (Black, White) and the confederates' perception of participants' nonverbal engagement.

## Discussion

Study 4 provides additional evidence that entity and incremental theorists of racial bias favor different strategies to manage difficult interracial interactions. After an initial, negative encounter with a Black interaction partner, incremental theorists were more likely than entity theorists to want to learn about their partner and self-disclose to their partner. This difference between entity and incremental theorists did not emerge when participants interacted with a White partner. In a difficult in-person interaction with a Black (compared with a White) partner, entity theorists were more likely to report that they used performance strategies—providing evidence that entity theorists tend to overcompensate in difficult interracial interactions—and less likely to report that they used learning strategies. In contrast, incremental theorists' use of performance strategies during the difficult in-person interaction was similar with Black and White confederates (suggesting no overcompensation). In addition, incremental theorists (compared with entity theorists) were more likely to report that they used learning strategies with a Black interaction partner. It is important to note that these effects occurred above and beyond participants' prejudice, motivations to respond without prejudice, and general interaction anxiety.

The present study builds on prior studies by examining perceptions of incremental and entity theorists' behaviors. Incremental theorists were observed to show similar levels of explicit and nonverbal engagement when interacting with a Black partner. However, when interacting with a Black partner, entity theorists showed higher levels of explicit engagement compared with nonverbal engagement. Consistent with our prediction that entity theorists would engage in prove and perform behaviors, entity theorists' explicit behaviors reflected engagement in the interaction, yet their nonverbal engagement behaviors—behaviors that are less likely to be monitored—did not reflect engagement in the interaction. The present study also extends the previous findings by examining how entity and incremental theorists respond in both intergroup interactions (interactions with a Black confederate) and intragroup interactions (interactions with a White confederate). Indeed, incremental and entity theorists differed in their strategy use with White and Black interaction partners. During the in-person interaction, incremental theorists responded similarly to White and Black interaction partners, reporting similar levels of learning behaviors. In contrast, entity theorists responded differently to White and Black interaction partners, engaging in more performance behaviors with Black partners compared with White partners and fewer learning behaviors with Black partners compared

with White partners. Furthermore, mediation analyses showed that the difference in nonverbal engagement Black confederates observed in entity theorists was accounted for by entity theorists' self-reported greater use of performance strategies.

Thus, Study 4 replicates the findings from Studies 1–3 in an actual interaction, revealing that Whites holding entity or incremental theories of racial bias engage in different strategies during difficult interracial interactions. Furthermore, the findings in the present study reveal that these strategies do not go unnoticed by one's interaction partner. This suggests that lay theories of racial bias do produce meaningful differences in the experiences of Black interaction partners and that these effects go beyond what can be accounted for by participants' prejudice and motivations to respond without prejudice.

It is interesting that performance and learning behaviors were differentially deployed by White participants in intergroup and intragroup interactions. As anticipated, learning behaviors, primarily used by incremental theorists, were present in both intergroup and intragroup interactions. We expected this because if one is interested in learning why one's actions could be perceived as biased, what went wrong in a race-relevant conversation, or merely more about one's interaction partner, this can be achieved regardless of an interaction partner's race. In contrast, performance behaviors, primarily used by entity theorists, were more likely to emerge in the intergroup (compared with intragroup) interactions. We anticipated this would be the case because the performance nature of these strategies benefits from the intergroup context. For example, many performance strategies (e.g., acting nicer than usual) would only be perceived to communicate a lack of racial bias when interacting with a non-White partner. That is, for someone who desired to demonstrate that he or she is not racially biased, being extremely nice to a Black interaction partner might serve to demonstrate this lack of bias. However, being extremely nice to a White interaction partner might demonstrate that one is a nice person, but it does not provide in itself any information about one's intergroup biases (or lack of biases).

One potential weakness of these data is the lack of a third party's assessment of entity and incremental theorists' behaviors in these interactions. However, we note that the confederates' ratings in the present research provide a valid assessment of incremental and entity theorists' behaviors. First, the predicted differences in incremental and entity theorists' nonverbal behavior emerged within confederate race. Second, confederates had no knowledge of the hypotheses, that participants were recruited as a function of individual differences in a psychological variable, or of the concept of lay theories. Third, confederate ratings of nonverbal behavior were mediated by participants' own self-reported use of performance strategies. Fourth, previous research has shown reliably that when confederates are unaware of the hypotheses, confederate ratings of verbal and nonverbal interaction partner behaviors correspond with observers' ratings of these behaviors (Dovidio et al., 2002; Hebl et al., 2002; King et al., 2006). And finally, participants reported their actual behavioral strategies from the interaction. That is, unlike in Studies 1–3, participants here were not reporting what they might do in the future but what they had done only moments before. Thus, the present research provides initial evidence that the behavioral strategies used by entity and incremental theorists of racial bias do indeed emerge in actual intergroup interactions and are detectable by one's interaction

partners. However, future work may benefit from a third party's observational coding of the behaviors engaged in by White entity and incremental theorists in interracial interactions. These additional data will likely provide not only converging evidence for the behaviors engaged in by entity and incremental theorists but might also identify additional behaviors that were not measured in the present research.

## General Discussion

Across four studies, Whites' beliefs regarding the malleability of racial bias predicted their preference for learning and performance strategies in difficult interracial interactions above and beyond related constructs, such as prejudice and motivations to respond without prejudice. Studies 1 and 2 demonstrated that, whether measured or manipulated, Whites who believed racial bias was malleable preferred learning strategies (e.g., perspective taking, learning what went wrong) for managing a difficult interracial interaction, whereas Whites who believed racial bias was fixed preferred performance strategies (e.g., escaping the situation, being overly nice). Study 3 showed that these preferences persisted in a real interracial interaction and illustrated an important boundary condition: Consistent with previous research, lay theories of racial bias differentially predicted strategy preferences in difficult (not neutral) interracial interactions.

And finally, in Study 4, White entity theorists reported that they used learning strategies to a lesser extent and performance strategies to a greater extent in a difficult face-to-face race-related interaction with a Black, compared with a White, interaction partner. Moreover, the Black (compared with the White) confederate interaction partners reported that although entity theorists were explicitly engaged, they were less nonverbally engaged (a discrepancy that was not reported regarding the behavior of incremental theorists). Mediation analyses revealed that the observed discrepancy in nonverbal and explicit engagement reported by Black and White confederate partners interacting with entity theorists was accounted for by entity theorists' greater use of performance strategies in this interaction. It is important to note that the Black confederates' ability to distinguish between entity and incremental theorists' behaviors provides evidence that lay theories of racial bias do meaningfully influence Whites' behavioral strategies and the quality of the interaction. That is, confederates had no knowledge of the study hypotheses and no way to know participants' lay theories of racial bias, yet Black confederate interaction partners were able to detect subtle differences in White participants' behaviors.

## Implications for Interracial Interactions

The present findings highlight that majority group members approach difficult interracial interactions with different strategies (see also Plant et al., 2010; Trawalter & Richeson, 2006). Although the increasing diversity in the United States enhances the likelihood that individuals will engage in interracial interactions, the strategies that majority group members use in interracial interactions that are not going well may differ as a function of whether they see racial bias as malleable or fixed. That is, if incremental theorists—those who believe racial bias is malleable—tend to engage in more learning-oriented behaviors, they are

likely gaining the experience and practice that previous research has cited as being valuable to improving intergroup interactions (e.g., Johnson, Mitchell, Bean, Richeson, & Shelton, 2010; Johnson & Richeson, 2009). In contrast, if entity theorists—those who believe racial bias is fixed—tend to engage in more performance-oriented behaviors, they are likely to be focused on hiding any appearance of bias and looking for opportunities to escape, thereby not gaining the benefits of the experience for future interracial encounters.

Furthermore, the specific learning and performance strategies that incremental and entity theorists use likely influence the overall quality of the interaction. For example, entity and incremental theorists reported different beliefs about whether the salience of race harms interracial interactions, with entity theorists favoring strategic color blindness, or ignoring race in intergroup interactions. However, strategic color blindness has been shown to have a number of negative consequences for interracial interaction. When Whites adopt a color-blind approach in interracial interaction, they tend to believe this communicates less prejudice (Apfelbaum & Sommers, 2009), even though they also tend to become more biased with this mindset (Richeson & Nussbaum, 2004), and Blacks tend to view Whites who take this approach as more prejudiced, not less (Apfelbaum et al., 2008; Apfelbaum & Sommers, 2009). Thus, although entity theorists may believe they are reducing the likelihood of appearing biased by taking a color-blind approach, they may be increasing this likelihood.

Favoring performance strategies over learning strategies may also have psychological costs for majority group members: Chronically regulating one's behaviors so as not to appear prejudiced is taxing and depletes executive control (Richeson & Trawalter, 2005). This is consistent with entity theorists' explicit engagement yet poorer nonverbal behavior in Study 4 (see also Migacheva, Tropp, & Crocker, 2011; Shelton, 2003). In addition, Whites who use overcompensation (a performance strategy) to reduce the likelihood that they will be seen as prejudiced tend to experience more anxiety and enjoy interracial interactions less (Shelton, 2003). However, there may be some benefits to performance-oriented behaviors. Some evidence suggests that minority group members respond more positively to Whites who adopt these overcompensation strategies than those who do not (Shelton, 2003; Shelton, Richeson, Salvatore, & Trawalter, 2005), in part because their partners seem more explicitly engaged.

Learning strategies may also have varied outcomes for one's interaction partner, depending on which learning strategies Whites adopt. On the one hand, when Whites use a highly self-relevant approach for interracial interactions—that is, their learning is explicitly intended to help themselves in the future and to reduce their own racial bias (Trawalter et al., 2009)—minority group members may find it a burden to serve in the role of teachers and consequently have a more negative experience in the interaction. On the other hand, when Whites use a highly partner-relevant approach—their learning is focused on how their biases may be influencing their partner (Trawalter et al., 2009), including considering their partner's perspective or asking their interaction partner how he or she is doing—their partner may have a more positive experience. Psychologists will benefit from continuing research that explores how performance and learning strategies influence the quality of interracial interactions and how these strategies similarly or differently affect minority and majority group members.

## Implications for Intervention

The present findings may help to develop targeted, theoretically driven interventions to foster Whites' positive engagement in intergroup interactions. Specifically, existing interventions may be differentially effective to the extent that they draw on tasks that serve learning and performance goals. For example, interventions that promote perspective taking (e.g., Galinsky & Ku, 2004; Galinsky & Moskowitz, 2000; Todd, Bodenhausen, Richeson, & Galinsky, 2011) or friendship development (e.g., Page-Gould, Mendes, & Major, 2010; Page-Gould, Mendoza-Denton, Alegria, & Siy, 2010; Page-Gould, Mendoza-Denton, & Tropp, 2008) may be effective for incremental theorists but not for entity theorists. Indeed, given incremental theorists' tendencies to use learning strategies, these types of interventions may serve to reaffirm a behavior that would naturally occur within this subset of individuals who already have learning goals in difficult interracial interactions. In contrast, given that many of these strategies may be seen by entity theorists, who tend to have performance goals in difficult interracial interactions, as potentially revealing them to be biased (possibly by activating meta-stereotypes of Whites as racist; Vorauer & Sasaki, 2009), interventions that emphasize perspective taking may backfire for entity theorists of racial bias. As another example, interventions designed for entity theorists may need to target entity theories directly, for instance, by teaching individuals that racial bias may be more malleable than they might have originally believed (as in Study 2) or administering learning goals for interracial interactions (see Goff, Steele, & Davies, 2008; Migacheva et al., 2011).

Entity theorists also showed less interest in feedback regarding their own biases than did incremental theorists. This suggests that entity and incremental theorists may differently respond to programs that offer feedback on one's bias, such as prejudice interventions or diversity training programs. For example, entity theorists may be more reluctant to participate in diversity trainings, perceive them as less valuable, and even avoid them altogether. Understanding and addressing Whites' beliefs about the malleability of bias may prove to be an important foundation for building successful, constructive discussions with Whites about race. Thus, psychologists will benefit from future research exploring how lay theories of racial bias influence the success of interventions designed to improve interracial interactions.

## Distinguishing Lay Theories of Racial Bias From Other Lay Theories

Some existing work in the lay theories literature examines intergroup phenomena yet remains distinct from our approach. Levy, Hong, Dweck, and others have shown that lay theories of people (i.e., whether people can change) influence many intergroup processes, including stereotyping, attribution, prejudice, and discrimination (Eberhardt, Dasgupta, & Banaszynski, 2003; Haslam, Bastian, Bain, & Kashima, 2006; Hong et al., 2004; Levy & Dweck, 1999; Levy, Chiu, & Hong, 2006; Levy, Plaks, Hong, Chiu, & Dweck, 2001; Levy, Stroessner, & Dweck, 1998; Werhun & Penner, 2010). For instance, an entity theory of people—believing people cannot change—leads to a greater reliance on stereotypes about groups (because stereotypes are seen to provide fixed information about a group's traits) and an amplified percep-

tion that outgroups are homogeneous (Levy et al., 2001). Recent work shows that lay theories of people held by individuals who are the targets of discrimination (women and members of ethnic minority groups) powerfully guide their likelihood of confronting experienced prejudice, as believing people cannot change leads to the conclusion that confronting prejudice will have no impact on the perpetrator (Rattan & Dweck, 2010).

Crucially, unlike this previous work, we do not seek in the present research to address whether and when people are prejudiced or use stereotypes but rather how their beliefs about the malleability of racial bias influence their behaviors during interracial interactions. Framed another way, focusing on general lay theories helps to explain the root and mechanisms of prejudices and biases; the present studies demonstrate that focusing on lay theories of racial bias helps to explain how people understand the nature of prejudice and manage their own actual or apparent bias. Our approach allows for predictions about behaviors in difficult interracial interactions that a general lay theory approach or a general prejudice approach does not make.

### Limitations and Future Directions

In the discussion above, we highlighted some avenues for future research, with a particular emphasis on integrating lay theories of racial bias into the understanding of interracial interaction and the efficacy of interventions to promote positive intergroup interaction. Below, we discuss limitations of the present research and additional avenues for future research.

One potential limitation of the present research is that the focal dependent variables—performance and learning strategies—may appear, at first blush, to overlap with approach and avoidance strategies. However, the constructs of performance and learning have a conceptual basis that cuts across approach and avoidance (see Cury, Elliot, Da Fonesca, & Moller, 2006; Elliot, 1999). In particular, performance strategies can encompass both approach and avoidance elements. This finds support in two literatures. First, work in achievement motivation related to lay theories identifies both performance-approach (e.g., “I want to do well in this class to show my ability to my family, friends, advisors, or others”) and performance-avoidance (e.g., “I just want to avoid doing poorly in this class”) orientations, which contrast with a mastery (learning) orientation (e.g., “I want to learn as much as possible from this class”; Elliot & Church, 1997). Second, when people view an interracial interaction as too demanding for their available resources, they engage in both overcompensation (an approach-oriented strategy) and escape (an avoidance-oriented strategy; Trawalter et al., 2009)—both of which we call performance strategies. In addition, a review article on the role of mindsets in interracial interactions (Murphy et al., 2011) corroborates this distinction between approach/avoidance and performance/learning. Murphy and colleagues noted that performance goals will likely manifest as approach behaviors, such as trying to be judged as likable and friendly (and not racist) as well as avoidance behaviors such as avoiding intergroup contact. Consistent with these literatures, we found evidence in our studies that performance strategies include both approach and avoidance behaviors. In Studies 1, 2, and 4, the measure of performance includes items tapping smoothing-over strategies (approach behaviors; e.g., being extremely nice) as well as escape strategies (avoidance behaviors).

A second limitation is our focus solely on interaction. Across all four studies, we have examined the role of lay theories of racial bias in predicting behaviors in difficult interracial interactions. However, lay theories of racial bias should influence perceptions and behaviors in any situation that is believed to be revealing of racial bias. For example, Whites’ lay theories of racial bias should influence perceptions of other Whites who mention race. Research suggests that Whites often believe that mentioning race is revealing of prejudice (e.g., Apfelbaum & Sommers, 2009). In Study 1 of the present research, we provide some evidence that this is particularly true for entity theorists. Thus, in situations where race is relevant—in describing a person, in describing what a person has said, or in discussing particular current events—entity theorists may be more likely to assume that Whites who mention race are racially biased and may be more likely to penalize Whites who mention race. Future research could explore the different situations that lead to divergent perceptions and behaviors from White entity and incremental lay theorists of racial bias.

A third limitation in the present research is a focus on *Whites’* lay theories of racial bias. Psychologists would benefit from future research exploring how racial minorities’ lay theories of racial bias affect their behavior in interracial interactions. It is unclear, however, whether racial minorities’ lay theories of racial bias would affect their own learning and performance strategies. That is, if racial minorities’ concerns in interracial interactions are not rooted in appearing racist, as are majority group members’ concerns (Shelton & Richeson, 2006), then their lay theories of racial bias may not necessarily lead them to engage in learning or performance strategies in interracial interactions.

However, it may be the case that minorities vary in the extent to which they believe Whites’ racial biases are malleable or fixed; these beliefs would likely influence behaviors in difficult interracial interactions. For example, as noted above, racial minorities’ lay theories of people (i.e., beliefs about whether people can change) predict the likelihood that they will confront prejudice (Rattan & Dweck, 2010). Lay theories of racial bias should similarly affect racial minorities’ likelihood of confronting prejudice, as believing a person’s racial bias can change should be a core belief driving confrontation. What is particularly interesting about this possibility is that it highlights how unique the study of racial bias is in the context of lay theories. Because intergroup relations and racial biases are essentially dynamic in nature, they introduce an additional layer of complexity when considering the role of lay theories. Psychologists will benefit from future research continuing the exploration of the complexities that are introduced when considering lay theories of racial bias, including the perspective of minority group members.

Finally, although we have shown that lay theories of racial bias influence behaviors, it is unclear how Whites come to believe that racial bias is fixed or malleable. Lay theories research has shown that authority figures can convey beliefs about the fixedness or malleability of intelligence to children (e.g., by praising ability vs. effort; Mueller & Dweck, 1998). Thus, White children may similarly look to authority figures, such as parents and teachers, for information regarding the fixedness or malleability of racial bias. Whites might also look to how racial minorities regard racial bias because Whites tend to see racial minorities as authorities on what constitutes racist behavior (Crosby, Monin, & Richardson, 2008; Vorauer, 2006; Vorauer & Sakamoto, 2008).

## Conclusion

Although interactions between majority and minority group members have become more common, when interracial interactions are difficult, they tend to be uncomfortable and taxing for all involved (Richeson & Shelton, 2007; Trawalter et al., 2009). Although increased intergroup contact can help to reduce existing prejudice and make interracial interactions more comfortable for everyone, our studies suggest that lay theories of racial bias may act as a gateway to whether Whites engage in such interactions at all and, when they do, whether they learn from these experiences.

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