

## Research Article

# The Fragility of Intergroup Relations

## Divergent Effects of Delayed Audiovisual Feedback in Intergroup and Intragroup Interaction

Adam R. Pearson,<sup>1</sup> Tessa V. West,<sup>2</sup> John F. Dovidio,<sup>1</sup> Stacie Renfro Powers,<sup>2</sup> Ross Buck,<sup>2</sup> and Robert Henning<sup>2</sup>

<sup>1</sup>Yale University and <sup>2</sup>University of Connecticut

---

**ABSTRACT**—*Intergroup interactions between racial or ethnic majority and minority groups are often stressful for members of both groups; however, the dynamic processes that promote or alleviate tension in intergroup interaction remain poorly understood. Here we identify a behavioral mechanism—response delay—that can uniquely contribute to anxiety and promote disengagement from intergroup contact. Minimally acquainted White, Black, and Latino participants engaged in intergroup or intragroup dyadic conversation either in real time or with a subtle temporal disruption (1-s delay) in audiovisual feedback. Whereas intergroup dyads reported greater anxiety and less interest in contact after engaging in delayed conversation than after engaging in real-time conversation, intragroup dyads reported less anxiety in the delay condition than they did after interacting in real time. These findings have theoretical and practical implications for understanding intergroup communication and social dynamics and for promoting positive intergroup contact.*

---

Considerable evidence emerging over the past decade has indicated that even brief interactions with members of racial or ethnic out-groups can be not only awkward, but also cognitively and emotionally taxing for members of both minority and majority groups (Blascovich, Mendes, Hunter, Lickel, & Kowai-Bell, 2001; for a review, see Richeson & Shelton, 2007). Ironically, efforts to regulate intergroup responses in the interest of promoting more positive social relations may often back-

fire. Well-intentioned individuals can often “choke” under the cognitive demands of intergroup encounters (Richeson & Trawalter, 2005), and this process can result in negative intergroup experiences and less positive interpersonal behavior (Plant, 2004; Vorauer & Turpie, 2004). Although negative intra- and interpersonal consequences of intergroup contact are now well documented, the behavioral mechanisms through which these effects may be transmitted in dyadic interactions remain less clear. In the research reported in this article, we aimed to explicate one such mechanism. Specifically, we examined how interpersonal behaviors often associated with efforts to carefully navigate intergroup encounters may not only reflect but also promote tension and undermine interest in intergroup contact.

Delays and hesitations in verbal and nonverbal behavior, such as silent pauses and speech disfluencies, are commonly associated with anxiety (Harrigan, Wilson, & Rosenthal, 2004; McCroskey, 1997; Siegman, 1987) and have been documented repeatedly within interracial and interethnic interactions, in which evaluative concerns are often amplified relative to their levels in intragroup exchanges (Crandall & Eshleman, 2003; Fugita, Wexley, & Hillery, 1974; Ickes, 1984; Vorauer, 2006; Vrij, Dragt, & Koppelaar, 1992; Winkel & Vrij, 1990; Word, Zanna, & Cooper, 1974). Within intergroup interactions, response delays may reflect a variety of behavioral and information-processing goals (Vorauer, 2006), including monitoring one’s thoughts, feelings, and behaviors to avoid communicating bias; detecting bias in other people; or simply negotiating uncertainty about how to behave in these situations (Gudykunst & Shapiro, 1996; Shelton & Richeson, 2006).

Whereas previous work has focused on verbal and nonverbal hesitations as a consequence of anxiety in intergroup interactions, we investigated the role of delayed responses as a potential *cause* of intergroup tension. Specifically, we hypothesized that to the

---

Address correspondence to Adam R. Pearson, Department of Psychology, Yale University, 2 Hillhouse Ave., New Haven, CT 06250, e-mail: adam.r.pearson@yale.edu.

extent that such behavior represents an ambiguous behavioral cue that may be differentially construed in social interactions, a delayed response will promote greater anxiety during and greater disengagement from intergroup encounters, relative to intragroup encounters, thus marking an iterative process through which intergroup tensions could build during initial stages of acquaintance. In the present study, we tested this notion directly by experimentally manipulating the temporal dynamics of intergroup and intragroup interaction, observing the impact of a brief delay in audiovisual feedback on perceptions of anxiety and interaction judgments among members of ethnic minority and majority groups.

Intergroup interactions are fundamentally different from intragroup interactions in the expectations that people bring to them. People anticipate interactions with members of other groups to be more stressful and less successful at establishing positive relations than interactions with members of their own group (Gudykunst & Shapiro, 1996; Mallett, Wilson, & Gilbert, 2008; Plant, 2004; Richeson, Dovidio, Shelton, & Hebl, 2007; Shelton & Richeson, 2005; Vorauer, Main, & O'Connell, 1998). These expectancies can imbue ambiguous behavioral cues with surplus meaning (Vorauer, 2006) and, in turn, shape the perception and expression of emotions, often in an expectancy-confirming manner (Beaupré & Hess, 2003; Hugenberg & Bodenhausen, 2003; Shelton & Richeson, 2005). To the extent that people make more negative attributions for their partners' ambiguous behavior in intergroup than in intragroup interactions, they may be less interested in seeking and sustaining intergroup contact (Shelton & Richeson, 2005). In the present research, we anticipated that a brief delay in communication would represent such an ambiguous behavioral cue, and would therefore trigger different interpersonal attributions and affective experiences consistent with participants' differing expectations for intergroup versus intragroup interactions.

In this study, minimally acquainted White, Black, and Latino participants engaged in intergroup or intragroup dyadic conversation over closed-circuit television. The conversations took place either in real time (the control condition) or with a subtle temporal disruption (a 1-s delay) in audiovisual feedback. We chose a 1-s delay on the basis of extensive pilot testing indicating that participants had no conscious awareness of the manipulation, as reflected by their responses on both open- and closed-ended measures. Perceivers' attributions for the delay were thus constrained to features that were intrinsic to the interaction (e.g., the behavior of the interaction partner), rather than possibly extrinsic features (e.g., malfunctioning equipment). After interacting, participants reported their experienced level of anxiety, perceptions of their partner's anxiety, and evaluation of the interaction.

Although a number of affective responses may be related to social expectations, we focus on one key marker of negative intergroup expectancies: anxiety (Gaertner & Dovidio, 1986; Plant, 2004; Stephan & Stephan, 1985, 2000), both as it is

experienced and as it is perceived in one's partner during social interaction. Specifically, we hypothesized that intergroup interactants would appraise an interaction more negatively when it was temporally disrupted, such that intergroup interactants in the delay condition would perceive greater anxiety in themselves and their partners, and consequently report less interest in the interaction, than would intergroup interactants who conversed in real time. In contrast, we expected that intragroup dyads would show resilience in the face of such a disruption, such that intragroup interactants in the delay and real-time conditions would report equivalent levels of anxiety and interest in the interaction.

To assess underlying affective and perceptual mechanisms, we examined the extent to which both participants' and partners' experienced anxiety and participants' assessments of their partners' anxiety might account for participants' reported interest in the interaction. Because majority- and minority-group members in intergroup interaction may be particularly vigilant toward signs of rejection by their partners (Shelton & Richeson, 2005; Vorauer, 2006), we expected that intergroup participants' reported interest in interacting would be influenced more by their beliefs about their partners' anxiety than by their own or their partners' self-reported experiences *per se*. In particular, we hypothesized that the delay would negatively affect interaction judgments primarily through increasing participants' perceptions that their out-group partners were anxious, rather than through increasing participants' own or their partners' own self-reported negative experience. Such an effect would provide evidence for an expectancy-confirming bias operating under time delay.

Finally, although we expected these processes to operate similarly for members of majority and minority groups, we also expected broader status-based biases to emerge in participants' assessments of their partners' anxiousness. Given that the motivation of lower-status (minority) groups to attend to the actions of dominant (majority) groups is often stronger than the motivation of dominant groups to attend to the actions of lower-status groups (Fiske, 1993), we expected that Black and Latino participants would assess their partners' anxiety in intergroup interactions more accurately, as determined by comparison with their partners' self-reported experience (see Kenny & Acitelli, 2001), than would White participants. In contrast, because Whites in the United States are often motivated to view racial and ethnic minorities as similar to themselves (Norton, Sommers, Apfelbaum, Pura, & Ariely, 2006), we expected that White participants would show stronger tendencies to project their anxiety in intergroup interactions than would minority participants.

## METHOD

### Participants

Participants were 144 self-identified White, Black, and Latino students (50% female, 50% male), who participated in exchange

for partial credit in an introductory psychology course. The study included 43 intragroup dyads (34 White, 8 Black, 1 Latino) and 29 majority-minority intergroup dyads (22 White-Black, 7 White-Latino).

### Procedure

Previously unacquainted students participated as dyads in a study ostensibly about “telecommunications and the media.” The members of each dyad occupied separate laboratory rooms equipped with video cameras and a large television monitor. They interacted over closed-circuit television. Dyads were randomly assigned to the experimental condition, in which digital equipment (TiVo<sup>®</sup>) was used to delay auditory and visual feedback for 1 s throughout the 6-min conversation, or a control condition, in which the interaction occurred in real time. During the session, participants discussed one of two emotionally charged topics (either the war in Iraq or the 2004 presidential election), guided by six assigned questions (e.g., “What is your opinion of news-media coverage of the [event]?”).

After the interaction, participants completed a questionnaire asking how “anxious,” “frustrated,” “embarrassed,” and “uncomfortable” they felt and their partner appeared to be during the interaction (the items were adapted from the work of Stephan & Stephan, 1985, 2000). Ratings were made on a scale from 1 (*not at all*) to 7 (*very much*;  $\alpha_s = .76$  and  $.77$  for self-perceptions and perceptions of the partner, respectively), and scores were averaged across self items and across partner-perception items to create indices of experienced anxiety and perceived partner’s anxiety, respectively. The postinteraction questionnaire also included additional items asking participants to assess their own and their partner’s more overtly negative (e.g., anger) and positive (e.g., happiness) emotions, and their perceptions that their partner was responsive during the interaction (e.g., “my partner let me know that I was communicating effectively”).

After completing the emotional-response questionnaire, participants indicated how favorably they viewed the interaction, by reporting their agreement with three statements: “I wanted to get to know my interaction partner,” “I found the interaction stimulating,” and “I would like to have another conversation like this one.” Ratings were made on a scale from 1 (*not at all*) to 7 (*very much*), and scores were averaged to create an index of self-reported interest in the interaction ( $\alpha = .75$ ). Finally, awareness of the experimental manipulation was assessed by asking participants whether they agreed that “there was no delay in the video system”; the scale ranged from 1 (*strongly disagree*) to 7 (*strongly agree*), and responses were reverse-scored.

## RESULTS

Data were analyzed using multilevel modeling treating dyad as the unit of analysis to control for nonindependence, and actor-partner interdependence models (Kashy & Kenny, 2000) were

estimated. Specifically, we used a factorial approach outlined by West, Popp, and Kenny (2008) that treats the dyad’s group composition (intragroup vs. intergroup) as an interaction of two separate factors in a 2 (perceiver’s group membership)  $\times$  2 (partner’s group membership) factorial design.

Preliminary analyses revealed no moderating effects of conversation topic; therefore, this variable was excluded from the analyses reported here. As in the pilot testing, the closed-ended measure showed that participants in the delay condition had no explicit awareness of the delay relative to control participants,  $t(88) = 1.27, p_{rep} < .72$ , and no participants expressed suspicion about this or any other aspects of the study relevant to the hypotheses (e.g., effects of group membership) in open-ended responses or during debriefing. Finally, an examination of Blacks’ and Latinos’ responses separately revealed no differences between these two groups in the analyses reported here; thus, our analyses focused on effects of membership in the majority (White) versus the minority (Black and Latino combined) group.

### Experienced (Self-Reported) Anxiety

The analysis of participants’ self-reported anxiety yielded a marginally significant main effect for perceiver’s group membership: Whites reported experiencing greater overall anxiety than did minority participants,  $t(128.83) = 1.85, p = .07, p_{rep} = .85, d = 0.38$ . The only other significant effect was the predicted three-way Perceiver Group  $\times$  Partner Group  $\times$  Condition interaction,  $t(65.45) = 2.89, p = .005, p_{rep} = .97, d = 0.64$ , indicating a differential effect of the delay as a function of the dyad’s group composition, not moderated by the perceiver’s or partner’s group membership (see West et al., 2008).

Figure 1 illustrates this three-way interaction, showing a parallel pattern of effects for majority and minority perceivers. Because majority and minority interactants showed parallel differences in responses to interactions with in-group and

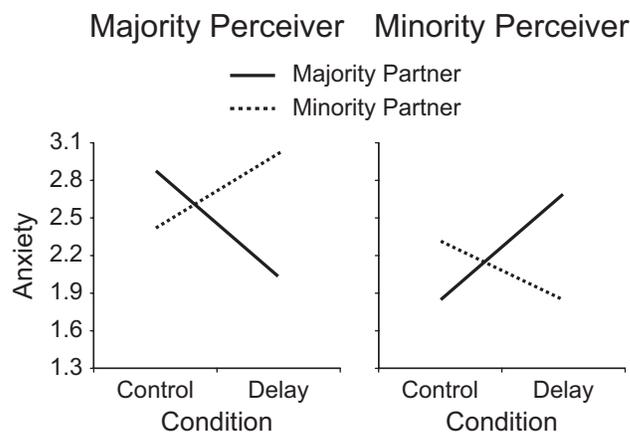
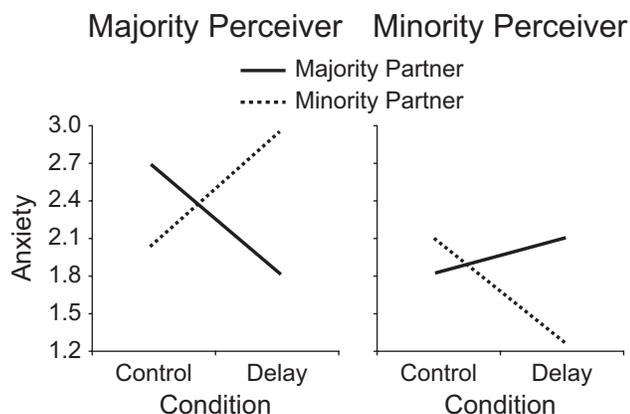


Fig. 1. Experienced anxiety (on a scale from 1 to 7) as a function of the perceiver’s and the partner’s group memberships and experimental condition.



**Fig. 2.** Perception of the partner's anxiety (on a scale from 1 to 7) as a function of the perceiver's and the partner's group memberships and experimental condition.

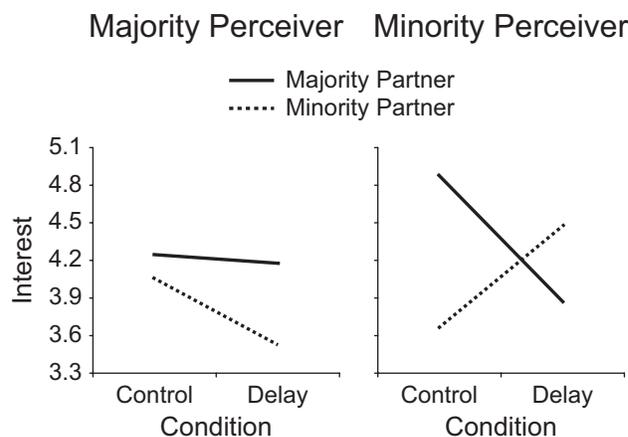
out-group members, our discussion of results focuses on differences between intergroup and intragroup dyads. As predicted, participants in intergroup dyads reported feeling more anxious in the delay condition than in the control condition,  $t(64.03) = 2.14, p = .036, p_{rep} = .90, d = 0.66$ . Intragroup dyads showed the opposite trend: Participants in these dyads reported feeling marginally less anxious in the delay condition than in the control condition,  $t(66.81) = -1.94, p = .06, p_{rep} = .87, d = 0.62$ .<sup>1</sup>

### Perceptions of the Partner's Anxiety

Next, we assessed participants' perceptions of their interaction partners' anxiety, using the same three variables (perceiver's group, partner's group, and experimental condition) as predictors. A main effect of perceiver's group membership was found: Whites viewed their interaction partners (both White and minority) as generally more anxious than did minorities,  $t(121.41) = 2.91, p = .004, p_{rep} = .97, d = 0.66$ . As in the prior set of analyses, no other main effects or two-way interactions were found; however, a significant three-way interaction of perceiver's group membership, partner's group membership, and condition again emerged,  $t(66.16) = 3.49, p = .001, p_{rep} = .99, d = 0.72$ .

As Figure 2 illustrates, this pattern of means was highly consistent with the pattern observed for experienced anxiety: Whereas participants in intergroup dyads perceived their partners as more anxious in the delay than in the control condition,  $t(64.86) = 2.08, p = .04, p_{rep} = .89, d = 0.60$ , those in intragroup dyads perceived their partners as significantly less

<sup>1</sup>Supporting the notion that the observed pattern of effects was specific to anxiety, an examination of the more overtly negative (e.g., anger) and positive (e.g., happiness) emotions revealed no significant interaction effects of condition and group membership on either self-reported emotional experience or perceptions of the partner's experience of these emotions (all  $p_{rep}s < .75$ ).



**Fig. 3.** Participants' reported interest in the interaction (on a scale from 1 to 7) as a function of the perceiver's and the partner's group memberships and experimental condition.

anxious in the delay condition than in the control condition,  $t(67.41) = -2.84, p = .006, p_{rep} = .96, d = 0.84$ .<sup>2</sup>

### Interest in the Interaction

At the end of the study, participants rated how interested they were in interacting with their partners. Paralleling the analyses of experienced anxiety and perceptions of the partner's anxiety, analysis of these ratings yielded a three-way interaction of participant's group membership, partner's group membership, and condition,  $t(65.03) = -2.91, p = .04, p_{rep} = .89, d = 0.48$  (see Fig. 3). As expected, participants in intergroup dyads indicated less interest in interacting with their partner in the delay condition than in the control condition,  $t(64.73) = -1.97, p = .05, p_{rep} = .88, d = 0.75$ . In contrast, the delay manipulation did not significantly influence interest in the interaction among intragroup dyads,  $p_{rep} = .60$ .<sup>3</sup>

### Mediation Analyses

We tested the hypothesis that the differential impact of the delay on interest in the interaction among intra- and intergroup dyads

<sup>2</sup>Analyses of the additional response outcome, perceived responsiveness of the partner (perceptions that the partner was "interested," "genuinely wanted to get to know me," and "let me know that I was communicating effectively";  $\alpha = .68$ ), lend further support to the notion that expectancies systematically biased participants' responses in the delay condition. As in the analyses already reported, a Perceiver Group  $\times$  Partner Group  $\times$  Condition interaction emerged,  $t(65.08) = -2.25, p_{rep} = .91$ ; participants in intergroup, but not intragroup, dyads perceived their partners as less responsive when communication was delayed. Although the present study focused specifically on the confirmation of anxiety expectations in intergroup interaction, these findings suggest that expectations that out-group members will be less interested in intergroup contact than members of one's in-group will be (Shelton & Richeson, 2005) may also be exacerbated by temporal discordance in social interaction.

<sup>3</sup>Although the figure seems to show that the delay enhanced interest in the interaction among minority intragroup dyads, this effect did not reach statistical significance, perhaps because of the small size of the minority intragroup sample. Future work might investigate the intriguing possibility that minority intragroup relations can actually benefit from some initial discordance, at least on predominantly White college campuses.

**TABLE 1**  
*Assumed Similarity and Accuracy in Perceptions of Partner's Anxiety*

Moderator	Assumed similarity	Accuracy
Condition <sup>a</sup>	-0.10 <sup>†</sup>	0.14*
Perceiver group <sup>b</sup>	0.25**	-0.02
Partner group <sup>b</sup>	0.04	0.07
Condition × Perceiver Group	0.12 <sup>†</sup>	0.03
Condition × Partner Group	-0.01	0.08
Perceiver Group × Partner Group	-0.05	-0.13*
Perceiver Group × Partner Group × Condition	0.08	-0.03

**Note.** All effect estimates reported in the table are unstandardized. More positive values indicate greater assumed similarity or greater accuracy in assessments of one's partner's anxiety. The estimates for assumed similarity indicate the extent to which perceptions of the partner's anxiety were predicted by the interaction of the perceiver's own (experienced) anxiety with the moderators listed in the table (controlling for accuracy). The estimates for accuracy indicate the extent to which perceptions of the partner's anxiety were predicted by the interaction of the partner's self-reported anxiety with the moderators listed in the table (controlling for assumed similarity). See Kenny and Acitelli (2001) and West, Popp, and Kenny (2008) for a more extensive treatment of this analytic method.

<sup>a</sup>Condition was coded 1 for the control condition and -1 for the delay condition. <sup>b</sup>Group was coded 1 for the majority group and -1 for the minority group.

<sup>†</sup> $p_{\text{rep}} > .82$ . \* $p_{\text{rep}} > .88$ . \*\* $p_{\text{rep}} > .99$ .

would be primarily mediated through participants' perceptions of their partners' anxiety, reflecting a negative expectancy-confirming bias in the attributions of intergroup perceivers. To do this, we conducted mediated-moderation analyses utilizing a strategy of estimating indirect effects in dyadic data demonstrated in West et al. (2008). The reported Perceiver Group × Partner Group × Condition interaction was treated as the initial predictor variable (keeping all lower-order effects in the models), participant's experienced anxiety and perceived partner's anxiety were treated as potential mediators, and participants' interest in the interaction was the outcome.

The path from the three-way interaction to the outcome was statistically significant,  $t(65.03) = -2.91, p = .04, p_{\text{rep}} = .89$ , as were the paths from the predictor to experienced anxiety,  $t(65.45) = 2.89, p = .005, p_{\text{rep}} = .97$ , and perceived partner's anxiety,  $t(66.16) = 3.49, p = .001, p_{\text{rep}} = .99$ . As expected, when experienced and perceived partner's anxiety were simultaneously included in the model, the path from the three-way interaction to the outcome was no longer significant,  $p_{\text{rep}} < .65$ , and only perceived partner's anxiety remained a significant predictor of the outcome,  $t(126.18) = -2.47, p < .02, p_{\text{rep}} = .94$ . Tests of the significance of the two indirect effects confirmed mediation only through perceived partner's anxiety: Whereas the indirect effect of the three-way interaction through perceived partner's anxiety was significant, Sobel  $z = 2.02, p < .05, p_{\text{rep}} = .89$ , the indirect effect through experienced anxiety was nonsignificant,  $p_{\text{rep}} = .16$ . This indirect effect through perceived partner's anxiety remained uniquely significant when partner's self-reported anxiety was added to the model,  $p_{\text{rep}} = .89$ , and when perceived partner's anxiety was treated as a lone mediator (i.e., experienced anxiety was omitted from the model),  $p_{\text{rep}} = .93$ . Consistent with an expectancy-bias account (Mallet et al., 2008), these results show that the delay reduced interest in intergroup contact by amplifying interpersonal

perceptions of anxiety and that these effects were over and above the effects of perceivers' or partners' own reported experiences.

#### Accuracy and Assumed Similarity

Finally, to examine the extent to which perceivers' perceptions of their partners' anxiety matched participants' reported experiences, we assessed the independent effects of accuracy and assumed similarity (projection, false consensus) in participants' judgments of their partners' anxiousness (see Kenny & Acitelli, 2001). The outcome was the perceiver's perceptions of the partner's anxiety, and simultaneous predictors were the partner's self-reported anxiety (to assess accuracy) and the perceiver's self-reported anxiety (to assess assumed similarity), the perceiver's group, the partner's group, experimental condition (delay vs. control), and all possible interactions (testing the role of each of these latter three factors as potential moderators of accuracy and assumed similarity).

Table 1 shows the overall effect estimates for accuracy and assumed similarity in anxiety assessments as a function of the perceiver's group, the partner's group, condition, and their interactions. The Perceiver Group × Partner Group × Condition interactions were not significant, which indicates that the delay did not have differential effects on accuracy or tendencies to project anxiety among intergroup versus intragroup dyads.<sup>4</sup>

<sup>4</sup>Across experimental conditions, however, participants' experienced anxiety did generally affect their judgments of the interaction through the process of projection. When perceived partner's anxiety was considered as a potential mediator of both perceiver's experienced (projected) anxiety and partner's reported (accurately perceived) anxiety, simultaneously (see Lemay, Clark, & Feeney, 2007), the effect of perceiver's experienced, but not partner's self-reported, anxiety on interest in contact was reduced, Sobel  $z = 2.42, p_{\text{rep}} = .94$ . Thus, to the extent that experienced anxiety affected interest in contact, this effect was exerted primarily through amplifying perceptions of anxiety in the partner.

However, as expected, more general status-based biases emerged. Whites showed stronger tendencies to project anxiety in both intergroup and intragroup interactions than did minorities. Additionally, participants in intergroup interactions showed greater accuracy in their perceptions of their partners' anxiety than did participants in intragroup interactions.

Table 2 shows the effect estimates for accuracy and assumed similarity broken down for majority-group and minority-group perceivers in intragroup and intergroup dyads. The table includes estimates for both direct accuracy (controlling for assumed similarity) and total accuracy (not controlling for assumed similarity). As hypothesized, accuracy within intergroup interactions was driven by the more accurate assessments by minority compared with majority perceivers in intergroup interaction (see results for direct accuracy).

## DISCUSSION

This study offers direct experimental evidence of the fragility of intergroup relations and resilience of intragroup relations when interactants are minimally acquainted. Whereas previous work has focused on response delay as a consequence of intergroup anxiety, this study experimentally demonstrated that response delay can also uniquely contribute to anxiety and promote disengagement from intergroup contact. In particular, we found that a delay in audiovisual feedback heightened felt and perceived anxiety and undermined interest in contact among intergroup, but not intragroup, conversation partners. Although in the control condition of our study, perhaps because of the highly structured interaction setting (see Richeson & Trawalter, 2005), intergroup dyads did not show significantly greater levels of anxiety than intragroup dyads, we found that even a slight deviation from this condition (a 1-s delay in the experimental

condition) was sufficient to arouse significantly greater anxiety in intergroup but not intragroup interactions.

The present findings shed new light on the dynamics and consequences of social interaction in at least three important ways. First, these results extend other findings suggesting that efforts to regulate responses in intergroup interactions can exact both intrapersonal and interpersonal costs (Richeson & Shelton, 2007; Vorauer, 2006) by revealing the causal role that temporal discordance can have in fueling tensions and undermining interest in intergroup interaction. Thus, even well-intentioned behaviors, such as efforts to monitor one's behavior to avoid appearing prejudiced, may substantially increase anxiety and reduce mutual interest in intergroup contact to the extent that they produce delays in responding. Note that Whites and minorities in the present study exhibited parallel responses within intergroup and intragroup interactions. This suggests that, regardless of the potentially differing psychological causes of such a disruption (e.g., different evaluative concerns of majority- and minority-group members in intergroup interaction; Vorauer, 2006), the negative consequences may be similar. Despite these shared outcomes, our findings also identify different processes through which majority- and minority-group members assess anxiety in other people, more generally, during social interaction. Whereas Whites showed significantly stronger tendencies to assume similarity of experience than did minorities in both intergroup and intragroup interactions, minorities showed greater accuracy, relative to Whites, in their assessments of their partners' anxiety within intergroup interactions. These biases illuminate new mechanisms through which differing perspectives may emerge among majority- and minority-group members and then be reinforced in intergroup interactions (Dovidio, Kawakami, & Gaertner, 2002; Shelton & Richeson, 2006).

Second, the divergent patterns of effects obtained for intergroup and intragroup interaction suggest that temporal coordination may play different roles in intergroup and intragroup dyadic relations. In particular, these findings suggest a need to reexamine current models of interpersonal interaction that deemphasize the importance of social coordination in early rapport building (e.g., Tickle-Degnen & Rosenthal, 1990) and to consider potential group-level moderating effects. In addition, although the focus of this study was on dynamics of delayed communication, future work might examine how other interaction processes, such as verbal and nonverbal synchrony and behavior matching (Bernieri & Rosenthal, 1991), shape perception and affective experience in intergroup and intragroup interaction.

Third, although actual intergroup encounters may often be less stressful and more positive than anticipated (Mallet et al., 2008), the present findings suggest a reason why differing expectations for intergroup and intragroup interactions often persevere. Consistent with and extending work by Shelton and Richeson (2005), our findings suggest that when people are

**TABLE 2**  
*Effect Estimates of Assumed Similarity and Accuracy as a Function of Participant Group*

Participant group	Assumed similarity	Accuracy	
		Total	Direct
Intragroup dyads			
Majority perceivers	0.71**	0.62**	0.16*
Minority perceivers	0.13	0.07	0.06
Intergroup dyads			
Majority perceivers	0.63**	0.37*	0.02
Minority perceivers	0.21*	0.29*	0.22 <sup>†</sup>

**Note.** All effect estimates reported in the table are unstandardized. Total accuracy refers to the effect of accuracy from a model in which assumed similarity was not estimated. Direct accuracy refers to the effect of accuracy from a model in which assumed similarity was simultaneously estimated (i.e., the effect of accuracy controlling for assumed similarity). Intraclass correlations for perceiver-partner similarity in reported anxiety were .21 for intragroup dyads and .26 for intergroup dyads. The analyses are based on Kenny and Acitelli (2001).

<sup>†</sup> $p_{rep} > .82$ . \* $p_{rep} > .88$ . \*\* $p_{rep} > .99$ .

confronted with even slight interactional ambiguity, the more positive expectancies they bring to intragroup interactions can lead them to give an attributional “benefit of the doubt” to in-group members that is not extended to out-group members (Hodson, Dovidio, & Gaertner, 2002). In contrast, consistent with a negative expectancy bias (Mallet et al., 2008), our results reveal that perceiving even a brief hesitation by an out-group member during a dyadic intergroup interaction can lessen one’s interest in further interpersonal contact by amplifying the perception that the other person is anxious beyond that person’s or one’s own reported experience of anxiety.

Although the present findings document the fragility of intergroup interaction, a key finding suggests one potential direction for developing interventions that promote and sustain more positive intergroup contact. Specifically, we found that participants’ perception of anxiety in their partners, rather than participants’ or their partners’ own feelings of anxiety, primarily mediated the negative impact of the delay on judgments of intergroup interaction. These findings suggest that changing people’s attributions regarding their partners’ behaviors in intergroup interactions (see Richeson & Trawalter, 2005) may not only lessen intergroup tensions and increase interest in contact, but also combat the “pluralistic ignorance” of assuming out-group members are less interested in contact than are members of one’s own group (Shelton & Richeson, 2005).

Finally, the present findings may also have direct practical implications. In law enforcement, for example, police officers, judges, and prosecutors frequently use apparently apprehensive behavior as a marker of deceptiveness during interrogations (Stromwall & Granhag, 2003). This kind of behavior is particularly prevalent among racial and ethnic minorities who are interrogated by White police officers (Vrij et al., 1992; Winkel & Vrij, 1990), and our findings indicate that such behavior is also likely to be more negatively construed in intergroup than in intragroup exchanges. This process of differential attributions may help account for many stubborn racial and ethnic disparities in law enforcement, such as in rates of vehicle search and seizure (see Engel & Johnson, 2006), as well as for documented biases in behavior during employment interviews (e.g., Fugita et al., 1974; Word et al., 1974). Furthermore, as everyday communications grow increasingly distant in both time and space with the expansion of electronic media, the potential for delayed responses to negatively shape intergroup perceptions will likely increase.

In conclusion, this research highlights the importance of considering dynamic processes that may shape intergroup and intragroup perception during social interactions (see also Dovidio et al., 2002; Shelton & Richeson, 2006). Whereas research on the contact hypothesis has traditionally emphasized the role of structural conditions (e.g., cooperative interdependence) and individual attitudes (e.g., racial bias) in effecting more positive intergroup relations, the present research under-

scores the importance of understanding the broader communicative processes that may operate within these contact settings. Knowledge of these processes can help illuminate how interpersonal interactions contribute to intergroup relations and, ultimately, influence the willingness of groups to sustain contact.

## REFERENCES

- Beaupré, M.G., & Hess, U. (2003). In my mind, we all smile: A case of in-group favoritism. *Journal of Experimental Social Psychology, 39*, 371–377.
- Bernieri, F., & Rosenthal, R. (1991). Coordinated movement in human interaction. In R.S. Feldman & B. Rimé (Eds.), *Fundamentals of nonverbal behavior* (pp. 401–432). New York: Cambridge University Press.
- Blascovich, J., Mendes, W.B., Hunter, S.B., Lickel, B., & Kowai-Bell, N. (2001). Perceiver threat in social interactions with stigmatized others. *Journal of Personality and Social Psychology, 80*, 253–267.
- Crandall, C.S., & Eshleman, A. (2003). A justification-suppression model of the expression and experience of prejudice. *Psychological Bulletin, 129*, 414–446.
- Dovidio, J.F., Kawakami, K., & Gaertner, S.L. (2002). Implicit and explicit prejudice and interracial interaction. *Journal of Personality and Social Psychology, 82*, 62–68.
- Engel, R.S., & Johnson, R. (2006). Toward a better understanding of racial and ethnic disparities in search and seizure rates for state police agencies. *Journal of Criminal Justice, 34*, 605–617.
- Fiske, S.T. (1993). Controlling other people: The impact of power on stereotyping. *American Psychologist, 48*, 621–628.
- Fugita, S., Wexley, K., & Hillery, J. (1974). Black-white differences in nonverbal behavior in an interview setting. *Journal of Applied Social Psychology, 4*, 343–350.
- Gaertner, S.L., & Dovidio, J.F. (1986). The aversive form of racism. In J.F. Dovidio & S.L. Gaertner (Eds.), *Prejudice, discrimination, and racism* (pp. 61–89). Orlando, FL: Academic Press.
- Gudykunst, W.B., & Shapiro, R.B. (1996). Communication in everyday interpersonal and intergroup encounters. *International Journal of Intercultural Relations, 20*, 19–45.
- Harrigan, J.A., Wilson, K., & Rosenthal, R. (2004). Detecting state and trait anxiety from auditory and visual cues: A meta-analysis. *Personality and Social Psychology Bulletin, 30*, 56–66.
- Hodson, G., Dovidio, J.F., & Gaertner, S.L. (2002). Processes in racial discrimination: Differential weighting of conflicting information. *Personality and Social Psychology Bulletin, 28*, 460–471.
- Hugenberg, K., & Bodenhausen, G.V. (2003). Facing prejudice: Implicit prejudice and the perception of facial threat. *Psychological Science, 14*, 640–643.
- Ickes, W. (1984). Compositions in black and white: Determinants of interaction in interracial dyads. *Journal of Personality and Social Psychology, 47*, 330–341.
- Kashy, D.A., & Kenny, D.A. (2000). The analysis of data from dyads and groups. In H.T. Reis & C.M. Judd (Eds.), *Handbook of research methods in social and personality psychology* (pp. 451–477). New York: Cambridge University Press.
- Kenny, D.A., & Acitelli, L.K. (2001). Accuracy and bias in the perception of the partner in a close relationship. *Journal of Personality and Social Psychology, 80*, 439–448.
- Lemay, E.P., Jr., Clark, M.S., & Feeney, B.C. (2007). Projection of responsiveness to needs and the construction of satisfying com-

- munal relationships. *Journal of Personality and Social Psychology*, 92, 834–853.
- Mallett, R.K., Wilson, T.D., & Gilbert, D.T. (2008). Expect the unexpected: Failure to anticipate similarities when predicting the quality of an intergroup interaction. *Journal of Personality and Social Psychology*, 94, 265–277.
- McCroskey, J.C. (1997). Willingness to communicate, communication apprehension, and self-perceived communication competence: Conceptualizations and perspectives. In J.A. Daly, J.C. McCroskey, J. Ayres, T. Hopf, & D.M. Ayres (Eds.), *Avoiding communication: Shyness, reticence and communication apprehension* (pp. 13–38). Cresskill, NJ: Hampton Press.
- Norton, M.I., Sommers, S.R., Apfelbaum, E.P., Pura, N., & Ariely, D. (2006). Colorblindness and interracial interaction: Playing the “political correctness game.” *Psychological Science*, 17, 949–953.
- Plant, E.A. (2004). Responses to interracial interactions over time. *Personality and Social Psychology Bulletin*, 30, 1458–1471.
- Richeson, J.A., Dovidio, J.F., Shelton, J.N., & Hebl, M. (2007). Implications of ingroup-outgroup membership for interpersonal perceptions: Faces and emotion. In U. Hess & P. Philippot (Eds.), *Group dynamics and emotional expression* (pp. 7–32). New York: Cambridge University Press.
- Richeson, J.A., & Shelton, J.N. (2007). Negotiating interracial interactions: Costs, consequences, and possibilities. *Current Directions in Psychological Science*, 16, 316–320.
- Richeson, J.A., & Trawalter, S. (2005). Why do interracial interactions impair executive function? A resource depletion account. *Journal of Personality and Social Psychology*, 88, 934–947.
- Shelton, J.N., & Richeson, J.A. (2005). Intergroup contact and pluralistic ignorance. *Journal of Personality and Social Psychology*, 88, 91–107.
- Shelton, J.N., & Richeson, J.A. (2006). Interracial interactions: A relational approach. In M.P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 38, pp. 121–181). New York: Academic Press.
- Siegmán, A.W. (1987). The telltale voice: Nonverbal messages of verbal communication. In A.E. Siegmán & S. Feldstein (Eds.), *Nonverbal behavior and communication* (pp. 351–434). Hillsdale, NJ: Erlbaum.
- Stephan, W.G., & Stephan, C.W. (1985). Intergroup anxiety. *Journal of Social Issues*, 41, 157–175.
- Stephan, W.G., & Stephan, C.W. (2000). An integrated threat theory of prejudice. In S. Oskamp (Ed.), *Reducing prejudice and discrimination* (pp. 23–46). Hillsdale, NJ: Erlbaum.
- Stromwall, L.A., & Granhag, P.A. (2003). How to detect deception: Arresting the beliefs of police officers, prosecutors and judges. *Psychology, Crime, and Law*, 9, 19–36.
- Tickle-Degnen, L., & Rosenthal, R. (1990). The nature of rapport and its nonverbal correlates. *Psychological Inquiry*, 1, 285–293.
- Vorauer, J.D. (2006). An information search model of evaluative concerns in intergroup interaction. *Psychological Review*, 113, 862–886.
- Vorauer, J.D., Main, K.J., & O’Connell, G.B. (1998). How do individuals expect to be viewed by members of lower status groups? Content and implications of meta-stereotypes. *Journal of Personality and Social Psychology*, 75, 917–937.
- Vorauer, J.D., & Turpie, C.A. (2004). Disruptive effects of vigilance on dominant group members’ treatment of outgroup members: Choking versus shining under pressure. *Journal of Personality and Social Psychology*, 87, 384–399.
- Vrij, A., Dragt, A., & Koppelaar, L. (1992). Interviews with ethnic interviewees: Nonverbal communication errors in impression formation. *Journal of Community and Applied Social Psychology*, 2, 199–208.
- West, T.V., Popp, D., & Kenny, D.A. (2008). A guide for the estimation of gender and sexual orientation effects in dyadic data: An actor-partner interdependence model approach. *Personality and Social Psychology Bulletin*, 34, 321–336.
- Winkel, F.W., & Vrij, A. (1990). Interaction and impression formation in a cross-cultural dyad: Frequency and meaning of culturally determined gaze behavior in a police interview setting. *Social Behavior*, 5, 335–350.
- Word, C.O., Zanna, M.P., & Cooper, J. (1974). The nonverbal mediation of self-fulfilling prophecies in interracial interaction. *Journal of Personality and Social Psychology*, 10, 109–120.

(RECEIVED 1/22/08; REVISION ACCEPTED 5/20/08)

This document is a scanned copy of a printed document. No warranty is given about the accuracy of the copy. Users should refer to the original published version of the material.