Taking Your Place or Matching Your Face: Two Paths to Empathic Embarrassment

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Empathic responding may be elicited by different processes, depending on the available situational and affective cues. We investigated two such processes, perspective-taking and nonverbal mimicry. In Study 1, participants watched an embarrassed or unembarrassed confederate dancing to music while either remaining objective or engaging in perspective-taking. Both manipulations affected empathic embarrassment. Study 2 further examined the effects of targets' embarrassment displays and observers' prior experience with the situation upon spontaneous perspective-taking, expressive mimicry, and empathic embarrassment. Embarrassment displays increased mimicry, but also spontaneous perspective-taking and subsequent empathy. Prior experience moderated the effects of embarrassment displays on perspective-taking and empathy. Path analyses demonstrated that embarrassment displays exerted indirect effects on empathic embarrassment through both perspective-taking and mimicry. The results suggest that available affective and situational cues can activate different routes to empathy, and highlight the value of simultaneously investigating target- and observer-based sources of influence.

Keywords: empathic embarrassment, emotion expression, perspective-taking, mimicry, embodiment, simulation

Empathy is a vicarious affective response that more strongly matches another person's emotional state or situation than one's own circumstances (Davis, 1996; Eisenberg, Shea, Carlo, & Knight, 1991; Hoffman, 1984, 2008). Empathic reactions range from sympathy and compassion (e.g., Batson et al., 1997; Lamm, Batson, & Decety, 2007; Van Kleef et al., 2008) to discrete emotions that more closely match a target's expressed feelings or specific circumstances (e.g., Davis, 1996; Hatfield, Cacioppo, & Rapson, 1992, 1994; Hatfield, Rapson, & Le, 2008; Hess & Blairy, 2001; Miller, 1987). Many theories suggest that this latter, matching emotional response can stem from various processes (see Batson, 2009; Davis, 1996; Hatfield et al., 1992, 1994, & 2008; and Hoffman, 1984, 2008, for extensive reviews). For example, automatic *mimicry* of another's nonverbal emotion expressions can subsequently influence one's own congruent affect (e.g., Hatfield et al., 1992, 1994, 2008). Individuals may also consciously engage in *perspective-taking*, or imagining themselves in the other's place, and experience an empathic emotional response (Batson, Early, & Salvanari, 1997; Lamm, Batson, & Decety, 2007; Stotland, 1969). Despite extensive theorizing on these multiple routes to empathy,

they have not been directly investigated within a single study. The present research focuses on *empathic embarrassment* (Miller, 1987) as a specific reaction that can illustrate these different processes.

People often feel embarrassed when their own self-image is threatened or discredited (Sabini, Siepmann, Stein, & Meyerowitz, 2000), but they can also experience empathic embarrassment, on behalf of others (Miller, 1987). For example, watching someone give a bad audition on *American Idol* may be sufficient to elicit embarrassment. Although this empathic reaction may be understandable when singers overtly show embarrassment, regular viewers of this program are also likely aware of the personal mortification one can experience even when performers do not display such emotion cues. This suggests that, in addition to targets' expressive behaviors, other contextual cues may be sufficient to elicit empathic embarrassment (Hoffman, 1984, 2008; Marcus & Miller, 1999; Marcus, Wilson, & Miller, 1996; Miller, 1987). In other words, empathic reactions may not be fully contingent on targets' embarrassment displays, but rather be evoked whenever observers witness situations that (would) cause them personal humiliation (Miller, 1987). This phenomenon highlights a critical challenge for theories of empathy, which typically place a central focus upon observers' responses to targets' expressed emotions.

The occurrence of empathic embarrassment in absence of targets' emotion displays suggests that such a response can arise through different processes, activated by the particular cues available to observers. This notion is compatible with recent simulation theories of empathy (Barsalou, Niedenthal, Barbey, & Ruppert, 2003; Niedenthal, 2007; Preston & De Waal, 2002). This perspective holds that experiencing, observing, and imagining emotional states recruit overlapping patterns of neural activity. Partial simulations or reenactments of perceptual, expressive, and introspective components of emotional experiences are thus central to processing others' affective states and cues. Both perspective-taking and nonverbal mimicry can be consid-

ered components of such simulations, in which individuals draw upon their own personal histories of emotion expressions, introspective states, and eliciting contexts to make sense of others' emotional circumstances and to share in their feelings (Barsalou et al., 2003; Preston & De Waal, 2002). To our knowledge, the notion that different processes can lead to the same empathic emotional response has gone largely unaddressed in previous empirical research. After an overview of research on nonverbal mimicry and perspective-taking, we present two studies testing their influences on empathic embarrassment.

Nonverbal Mimicry

Prior literature suggests *nonverbal mimicry* as an emotion display-dependent process that can potentially contribute to empathic embarrassment. Mimicry is typically viewed as the result of an automatic link between perception and action, in which witnessing the emotion expressions of a target fosters tendencies to engage in the same behavior (Barsalou et al., 2003; Dijksterhuis & Bargh, 2001; Dimberg, Thunberg, & Elmehed, 2000; Preston & De Waal, 2002; Neumann & Strack, 2000; Niedenthal, 2007). Because the motor and affective systems share overlapping neural substrates, mimicking these cues can cascade onward to activate an observer's concordant subjective feelings through an afferent feedback process (Barsalou et al., 2003; Duclos et al., 1989; Flack, 2006; Hatfield et al., 1992, 1994, 2008).

Support for mimicry-based empathy has come from studies reporting participants' matching facial muscle activity when exposed to expressions of joy, anger, or fear (e.g., Dimberg et al., 2000; McHugo, Lanzetta, Sullivan, Masters, & Englis, 1985; Sato & Yoshikawa, 2007; Sonnby-Borgstrm, 2002; Sonnby-Borgstrm, Jönsson, & Svensson, 2003), and participants' concordant subjective emotions when their own muscles are manipulated (Duclos et al., 1989; Flack, 2006; Larsen, Kasimatis, & Frey, 1992; Strack, Martin, & Stepper, 1988). Studying mimicry of embarrassment displays extends this research, because these expressions comprise a complex sequence of facial (e.g., smiling and gaze aversion) and bodily movements (e.g., touching one's face or clothing; Keltner, 1995). Because both facial and postural feedback can produce changes in related subjective feelings (Flack, 2006), and combinations of behaviors produce stronger responses (Flack, Laird, & Cavallaro, 1999), mimicry of these expressions may produce heightened empathic embarrassment.

The exclusive use of naïve targets in prior studies on empathic embarrassment, whose own embarrassment-related behaviors might be irregular or idiosyncratic, complicates examinations of mimicry and whether it contributes to this empathic response. Using confederates' displays, in contrast, ensures a tighter control of the extent and interpretability of expressive cues (see, e.g., Semin & Manstead, 1982) and allows researchers to assess specific behaviors when examining observers' own nonverbal responses. The present study is the first to use a confederate's displays of embarrassment to investigate whether observers' mimicry of these behaviors influences their empathic responses.

Perspective-Taking

Observers' *perspective-taking*, or imagining how they would feel in another's situation,[1] is a higher-order cognitive activity that may be a second process underlying empathic embarrassment. Providing overt perspective-taking instructions to participants while they observe another's discomfort increases their physiological and self-report indices of personal distress, as if they were experiencing the situation themselves (e.g., Batson et al., 1997; Lamm et al., 2007; Miller, 1987; Stotland, 1969). The heavy reliance on explicit perspective-taking instructions in prior research is problematic, however, because such manipulations have been used only in combination with invariantly present or nonmanipulated emotion cues from a target (e.g., Batson et al., 1997; Davis, Conklin, Smith, & Luce, 1996; Lamm et al., 2007; Miller, 1987; Stotland, 1969). It is thus unclear whether perspective-taking can instigate empathy independently of a target's emotional displays, or only in conjunction with a target's expressions. The present research builds upon these earlier studies by directly examining whether the cognitive process of perspective-taking is sufficient to produce empathic embarrassment, independent of a target's own emotional behavior (Davis, 1996; Hoffman, 1984, 2008).

Whereas perspective-taking instructions have been shown to increase empathic responding in many studies, research examining spontaneous perspective-taking remains quite rare (but see Gruen & Mendelsohn, 1986). In this sense, more information is needed about the social cues that may elicit this process, in absence of overt guidance from experimenters. Various theorists have conjectured, for example, that a target's emotion displays may also prompt observers to spontaneously reflect upon their own potential feelings or on similar past experiences (Barsalou et al., 2003; Batson et al., 1996; Hoffman, 1984, 2008; Ruby & Decety, 2004). This may be especially true for displays of emotions, such as embarrassment, which serve the social function of promoting affiliation and strengthening social bonds with others (Fischer & Manstead, 2008; Keltner & Buswell, 1997; Keltner & Haidt, 1999; Semin & Manstead, 1982). The present research is the first to investigate whether a target's nonverbal displays of emotion activate observers' spontaneous perspective-taking, and whether this cognitive process subsequently contributes to observers' concordant empathic emotions.

The Present Research

We investigate different routes to empathic embarrassment by combining manipulations of a target's embarrassment displays, observers' perspective-taking, and prior experiences in novel

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[1] Although other research has distinguished between "imagine-self" and "imagine-other" perspective-taking (Batson et al., 1997; Davis et al., 1996; Lamm et al., 2007; Stotland, 1969), we focus explicitly on the former, for several reasons. First, "imagine-other" perspective-taking draws heavily upon information provided by targets (e.g., Davis, 2005), which we viewed as redundant with our focus on the role of expressive behaviors. Second, the theoretical approach that we use suggests that the self is a "default" platform on which to base inferences about others (Decety, 2005; Preston & De Waal, 2002). Third, although conceptually distinct, experiments attempting to manipulate the two forms through explicit instructions have shown rather poor differentiation in participants' self-reported focus (Batson et al., 1997; Davis et al., 1996). Thus, in this article, we use the term "perspective-taking" to describe the act of imagining oneself in another's situation.

ways. In doing so, these studies provide several important extensions to existing empathy theories. First, in Study 1, we investigate whether empathic embarrassment can be elicited by a target's emotional expressions, as well as through observers' perspective-taking when the target does not provide these nonverbal cues. To our knowledge, this is the first study to explicitly test whether conscious information processing of other contextual cues can elicit the same empathic emotional response, regardless of a targets' own emotional behavior. We examined this by manipulating a target's emotion displays during an embarrassing task and giving half of the participants explicit perspective-taking instructions.

In addition, although prior studies have shown that targets' expressions of embarrassment can influence observers' empathic responses (Marcus & Miller, 1999; Miller, 1987), the processes underlying this effect remain unclear. In Study 2, we therefore investigate whether a target's displays of emotion affect empathic embarrassment both through nonverbal mimicry and though conscious perspective-taking. By assessing spontaneous perspective-taking (instead of manipulating perspective-taking), we can acquire valuable information as to whether attending to targets' nonverbal displays activates multiple pathways leading to an empathic emotional response.

Finally, we also examine in Study 2 whether participants' prior experience with the target's situation enhances either of the processes proposed to affect empathic embarrassment. Simulation perspectives suggest that a closer experiential overlap should enrich motor representations and subsequent mimicry of a target's actions, and also allow for more complete imagining of the target's circumstances (Barsalou et al., 2003; Preston & De Waal, 2002; Niedenthal, 2007). Examining whether prior experience enhances one or both of these processes can lend needed clarity (Davis, 1996) to the nature of the similarity-empathy links reported in prior studies (e.g., Batson et al., 1996; Epstude & Mussweiler, 2009; McHugo et al., 1985; Shearn, Spellman, Straley, Meirick, & Stryker, 1999). Thus, the present research can provide several valuable insights into how different empathic processes operate in the presence or absence of the particular social cues available to observers.

Study 1

In Study 1, we tested whether different kinds of social cues can trigger empathic embarrassment in observers. We exposed participants to a potentially embarrassing situation, namely observing a target (actually a confederate) dancing to prerecorded pop music (cf. Apsler, 1975) and orthogonally manipulated participants' perspective-taking and the presence versus absence of the target's embarrassment displays. We expected that individuals would feel stronger empathic embarrassment when the target expressed embarrassment, compared with when she remained calm and aloof. We further expected perspective-taking to influence empathic embarrassment, predicting that participants' imagining how they would feel in the target's situation would increase their empathic embarrassment even in absence of the target's emotional behaviors.

Method

Participants and Design

Eighty female undergraduate students (M_{Age} = 22.40, SD = 5.35) at a large Dutch university took part in the research. Partic-

ipants received course credit or €7 ($10 U.S.). All participants were randomly assigned to a 2 × 2 factorial design, varying both perceptual set instructions to the participant (Objective vs. Perspective-Taking) and the target's nonverbal behavior (Unembarrassed vs. Embarrassed).

Materials and Apparatus

We developed two 60-s videos of a confederate's dancing performance. In the "embarrassed" film, the confederate enacted behaviors found in previous research to be associated with feelings of embarrassment (e.g., Keltner, 1995), including gaze aversion, smiling, touching her face, hair, and clothing, and downward head movements (see Figure 1). The confederate enacted these behaviors several times during the video. In the "unembarrassed" version, the confederate remained cool and aloof while dancing and did not engage in these behaviors. All other aspects of the films were held constant, including the confederate's dance steps and the duration of the videos. The experiment was conducted in individual cubicles containing a computer monitor and stereo speakers. All instructions, measures, and stimuli were administered via computer.

Measures

Empathic embarrassment.   Participants completed a 14-item emotion inventory with regard to their personal feelings while watching the film. Six items assessed participants' personal feelings of embarrassment: *ongemakkelijk* (awkward), *beschaamd* and *gegeneerd* (embarrassed), *onbeschaamd* (unembarrassed, reverse-coded), *verlegen* (shy), and *in verlegenheid gebracht* (flustered). Participants rated all of these words on a 7-point scale (0 = *not at all,* 6 = *a great deal*). The measure showed good reliability (α = .92).

Manipulation checks.   To check the manipulation of embarrassment displays, participants reported their impressions of the confederate's embarrassment on the same 6-item scale used to assess empathic embarrassment (α = .95). In addition, participants also indicated on single-item, 5-point Likert scales (1 = *not at all,* 5 = *very much*) their focus on remaining objective and their focus on their own potential feelings in the other's situation.

Procedure

Participants were told that they would participate in a study validating a new behavioral measure. It was explained that they would view a film clip of a participant from an earlier project as she performed a randomly selected task, and were to provide their observations of that person. Participants were given no warning as to what the task would be. Before viewing the film clip, participants received instructions either to be as objective as possible in their assessments of the confederate's thoughts and feelings (Objective condition), or to imagine their own thoughts and feelings if they were in the confederate's situation (Perspective-Taking condition; e.g., Batson et al., 1997; Davis et al., 1996). Participants then viewed the Unembarrassed or Embarrassed confederate film.

Afterward, participants filled out the emotion inventory, first for themselves and then with regard to the confederate. We explained that it was necessary to control for participants' own responses to

Figure 1. Unembarrassed (top) and Embarrassed (bottom) versions of the dancing confederate film.

the film in our analyses, and thus they should report as accurately and honestly as possible. Finally, participants completed the focus manipulation checks and provided demographic information, followed by a debriefing.

Results

Manipulation Checks

Ratings of confederate embarrassment. The embarrassment manipulation had its intended effect. The confederate's embarrassment was rated higher when she enacted embarrassment displays ($M = 5.06$, $SD = .66$), compared with when she did not ($M = 3.03$, $SD = 1.40$), $F(1, 76) = 67.69$, $p < .001$, $\eta_p^2 = .47$, but did not differ as a function of perspective-taking, $F(1, 76) = .02$, $p = .88$ and no significant interaction existed, $F(1, 76) = .99$, $p = .32$.

Reported objectivity. Participants in the Objective condition focused on being objective to a greater extent ($M = 3.00$, $SD = 1.28$) than did those in the Perspective-Taking condition ($M = 2.25$, $SD = 1.10$), $F(1, 76) = 7.70$, $p = .007$, $\eta_p^2 = .09$. This did not differ as a result of the embarrassment display manipulation, $F(1, 76) = .03$, $p = .85$, nor was there an interaction, $F(1, 76) = .31$, $p = .58$. In contrast, Perspective-Taking participants concentrated on their own feelings to a greater extent ($M = 4.48$, $SD = .64$), compared to those in the Objective condition ($M = 3.25$, $SD = 1.15$), $F(1, 76) = 34.64$, $p < .001$, $\eta_p^2 = .31$. This did not differ as a result of the display manipulation, $F(1, 76) = .71$, $p = .40$, nor was there a significant interaction, $F(1, 76) = 1.17$, $p = .28$. Thus, the perspective-taking instructions appeared successful.

Empathic Embarrassment

Participants in the Perspective-Taking condition ($M = 2.90$, $SD = 1.60$) reported more intense feelings of embarrassment while watching the film than did those in the Objective condition ($M = 1.73$, $SD = 1.35$), $F(1, 76) = 13.20$, $p = .001$, $\eta_p^2 = .15$. We also found a main effect of Embarrassment Display: Those who witnessed the confederate's embarrassment displays felt more embarrassed ($M = 2.63$, $SD = 1.58$), compared to those who saw an unembarrassed confederate ($M = 2.00$, $SD = 1.55$), $F(1, 76) = 3.91$, $p = .05$, $\eta_p^2 = .05$ (see Figure 2). The interaction between the manipulations was not significant, $F(1, 76) = 2.61$, $p = .11$, $\eta_p^2 = .03$. Thus, as expected, participants' embarrassment increased both with exposure to the target's embarrassment displays and when imagining themselves her situation.
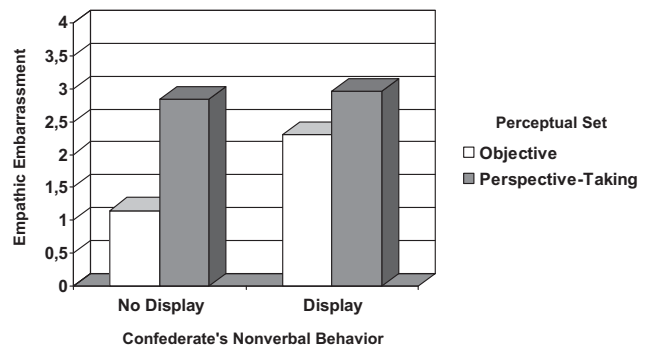

Figure 2. Study 1 scores of empathic embarrassment, per condition.

Discussion

In Study 1, we orthogonally manipulated a target's embarrassment displays and observers' perspective-taking to examine whether different social cues can evoke empathic embarrassment. We expected each manipulation to exert a main effect upon observers' own feelings of embarrassment. First, empathic embarrassment was indeed heightened in response to the target's emotion displays. More importantly, however, perspective-taking also increased empathic embarrassment independently of whether the target expressed this emotion. These results support the suggestion that conscious processing of situational cues can directly influence empathic responses, even in absence of a target's own emotion expressions (e.g., Davis, 1996; Hoffman, 1984, 2008). Thus, in addition to being affected by overt displays of distress, observers predisposed toward perspective-taking may also experience empathic embarrassment when targets do not show such feelings.

Although these results support the idea that empathic embarrassment can arise from perspective-taking alone, they do little to clarify whether the confederate's emotion displays exerted their influence through automatic and/or conscious cognitive processes. In a second study, we therefore examined whether emotion displays would influence empathic embarrassment by activating participants' nonverbal mimicry and their spontaneous perspective-taking. Further, we examined whether participants' prior experiences with the confederate's task would moderate these processes.

Study 2

In Study 2, we investigated whether the confederate's emotional displays would activate dual processes (cf. Van Kleef, 2009) leading to empathic embarrassment. Consistent with a mimicry account, we expected that participants exposed to an embarrassed confederate would mimic her emotion-related behaviors, and that this mimicry would enhance participants' own embarrassment. Second, we predicted that embarrassment displays would prompt observers' spontaneous perspective-taking, and that this would also heighten their empathic responding. Thus, in contrast with most research, here we examined *spontaneous* perspective-taking instead of overtly manipulating this process.

In addition, we investigated whether giving participants prior experience with the confederate's situation would moderate the influence of embarrassment displays upon these two processes. Simulation theories suggest that increasing the similarity between an observer and a target should allow for more exact perception-action mapping and related mimicry (e.g., Preston & De Waal, 2002). Further, Batson and colleagues (1996) demonstrated that shared history with a particular hardship increased observers' empathy, and suggested that prior experience enhances the ease of perspective-taking. Research has additionally shown that participants given experience with an embarrassing task blushed more intensely when later watching another perform the same act (Shearn et al., 1999). In both of these studies, however, perspective-taking was only inferred as a mediating mechanism from the pattern of results. Directly examining whether prior experience moderates both automatic and cognitive routes to empathic embarrassment can thus help to clarify the nature of this effect. To this end, half of Study 2 participants performed the

confederate's dancing task before viewing the film, and the others performed a different embarrassing task. This manipulation differed from past studies, which have typically compared experience with a target's exact situation to a control group with no emotional history (e.g., Batson et al., 1996; Shearn et al., 1999). This earlier method, however, conflates the experience of a situation with the experience of an emotion. We predicted that having prior experience with the target's *specific situation* increases empathy beyond having experienced a target's particular *emotion*, more generally (also see Preston et al., 2007).

In sum, we refined our investigation of empathic embarrassment in several ways. First, we examined whether embarrassment displays can activate two different processes, namely observers' mimicry and their spontaneous perspective-taking, which subsequently influence the experience of empathic embarrassment. Second, we tested whether an additional situational factor, observers' prior experience with the target's situation, would increase either perspective-taking or mimicry in response to embarrassment displays.

Method

Participants and Design

Participants were 103 University undergraduates in the Netherlands (23 male, 80 female; $M_{Age} = 20.30$, $SD = 3.09$), who again received either course credit or €7. Three participants were excluded from analyses because they reported knowing the confederate. Two participants were excluded because they declined to perform their assigned embarrassing task. An additional four participants were excluded as statistical outliers because of exceptionally low reports of personal embarrassment during their assigned task. The remaining 94 participants (22 male, 72 female) were randomly assigned to a 2 × 2 factorial design, manipulating the target's nonverbal behavior (unembarrassed or embarrassed) and prior experience with the confederate's task (no experience or prior experience).

Measures

Manipulation checks. Participants rated the extent of the confederate's observed embarrassment on the basis of the same six-item scale from Study 1. To ensure that the two tasks assigned to participants were equally embarrassing, they completed a similar scale with regard to their own emotions directly after completing their task. Reliability was good for reports of task-related embarrassment ($\alpha = .93$) and confederate embarrassment ($\alpha = .95$).

Participants' *nonverbal mimicry.* We drew upon Keltner's (1995) description of prototypical embarrassment displays to assess participants' own embarrassment-related nonverbal behaviors as they watched the film. These prototypical displays include behaviors such as smiling, gaze aversion, downward head movements, and touching one's face or body. Importantly, however, it is the combination of these behaviors, not their occurrence in isolation, that produces reliable ratings of embarrassment (Keltner, 1995; Keltner & Buswell, 1997). The behavioral representations activated by witnessing such displays may often be incomplete and/or inaccurate, however (e.g., Niedenthal, 2007; Preston & De Waal, 2002), and mimicking the full sequence of prototypical behaviors may not always occur. As a

compromise between these two positions, the first author (blind to participants' conditions) rated the number of times each participant engaged in two or more of the aforementioned actions in close succession (separated by no more than 1 s).[2] A frequency score was constructed for each participant by totaling the number of discrete behavioral incidences.

Participants' conscious perspective-taking was measured with four items (e.g., "While watching the other participant... I imagined myself in her situation; I thought about how I would feel if I were in her shoes; $\alpha = .67$), measured on a 7-point scale (0 = *not at all*; 6 = *a great deal*). These items were randomly intermixed with empathic embarrassment items.

Empathic embarrassment. Participants' empathic embarrassment was assessed with the same six-item scale as in Study 1, which again achieved good reliability ($\alpha = .90$).

Materials and Apparatus

The experiment was conducted in individual cubicles containing a computer monitor with a visible camera, a table-mounted microphone, stereo speakers, a work booklet, and a set of colored pencils. All measures and tasks were administered by the computer. The same confederate videos from the previous study were again used for this experiment.

Procedure

The purpose of the experiment was ostensibly to study the effects of music on creativity and problem-solving. Upon providing informed consent (including notification that they could withdraw at any point), participants were instructed to sit in front of a computer in an individual cubicle, fitted with a visible webcam and microphone. Participants were informed that the camera and microphone would become active during the study. Participants then began by responding to various personality measures, followed by a bogus questionnaire that asked about the importance of music in their lives.

The computer informed participants that they would begin the first of several tests designed to examine the link between certain types of music and their creative abilities. The participants then heard the same song used in Study 1, and the lyrics to the song were presented on the computer screen. Participants were instructed to pay close attention as they listened to the song. After presentation of the music, participants were told that they would perform a randomly assigned task designed to test their own musical and rhythmic abilities. Participants were then instructed to either dance to the song (prior experience) or to sing along with the music (no prior experience) in front of the camera. Afterward, participants reported their level of embarrassment during the activity. These manipulation check items were intermixed with items assessing their liking of the song and whether they became more familiar with the lyrics.

Participants then engaged in approximately 30 min of unrelated activities, including a timed maze-completion test and a "creative" coloring exercise. Participants were then told that they would complete one final test, where their job was to provide observations of another participant. Participants then viewed either the unembarrassed or embarrassed version of the dancing confederate video. The webcam became active during the film, unbeknownst to participants, and recorded their nonverbal behaviors. After the video, participants completed the empathic embarrassment and perspective-taking items,

followed by ratings of the confederate's embarrassment. These latter items were also intermixed among other, bogus items assessing the confederate's musical abilities. Participants then provided demographic data and were debriefed. None of the participants had suspected being filmed as they watched the stimulus video, and all gave consent for their films to be analyzed.

Results

The means and standard deviations of all variables are in Table 1.

Manipulation Checks

A two-way analysis of variance (ANOVA) showed that participants' experienced embarrassment did not differ depending on their assigned task ($M_{\text{Sing}} = 3.54$, $SD = 1.55$) or danced ($M_{\text{Dance}} = 3.96$, $SD = 1.01$), $F(1, 90) = 2.18$, $p = .14$, nor were there differences based on the embarrassment display condition, $F(1, 90) = .13$, $p = .72$, or an interaction between the manipulations $F(1, 90) = 2.71$, $p = .10$. An additional ANOVA again confirmed participants' perception of higher confederate embarrassment in the presence of Embarrassment Displays ($M = 4.98$, $SD = .91$), compared to No Displays ($M = 3.06$, $SD = 1.14$), $F(1, 90) = 81.97$, $p < .001$, $\eta_p^2 = .48$. These scores did not differ based on the Prior Experience manipulation, $F(1, 90) = 1.79$, $p = .18$, and no significant interaction existed, $F(1, 90) = .61$, $p = .44$.

Empathic Embarrassment

A two-way ANOVA on participants' empathic embarrassment revealed no main effect of Prior Experience, $F(1, 90) = .01$, $p = .94$, $\eta_p^2 < .01$. There was a trend for a main effect of Embarrassment Display, $F(1, 90) = 3.27$, $p = .07$, $\eta_p^2 = .04$, in which participants who observed an embarrassed confederate tended to feel stronger empathic embarrassment ($M = 1.70$, $SD = 1.33$) than those who saw the unembarrassed confederate ($M = 1.29$, $SD = 1.13$). We also found the anticipated Display × Experience interaction, $F(1, 90) = 8.99$, $p = .004$, $\eta_p^2 = .09$. Planned comparisons showed that there was no effect of embarrassment display among participants who sang, $F(1, 90) = .74$, $p = .39$, $\eta_p^2 < .01$, but that such displays heightened empathic embarrassment among participants who had prior experience with the confederate's dancing task, $F(1, 90) = 11.09$, $p < .001$, $\eta_p^2 = .11$ (see Table 1).

We additionally used planned comparisons to examine whether prior experience increased empathy in the presence of embarrassment displays. Among those who saw these displays, dancers reported stronger empathic embarrassment than singers ($F(1, 90) = 4.37$, $p = .04$, $\eta_p^2 = .05$). Among those who saw no displays, singers reported stronger empathic embarrassment than dancers ($F(1, 90) = 4.62$, $p = .03$, $\eta_p^2 = .05$). Thus, when displays of embarrassment were present, prior experience with the confederate's task *increased* empathy. When these displays were absent, however, prior experience *decreased* empathy.

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[2] Given that downward head movements typically also entail gaze aversion, we did not count the co-occurrence of these two actions as mimicry behavior. To be counted in our analyses, one or both of these actions had to co-occur with smiling and/or face-touching.

Table 1
Means and Standard Deviations of Study 2

	Condition							
	No prior experience (singing task)				Prior experience (dancing task)			
	Unembarrassed confederate		Embarrassed confederate		Unembarrassed confederate		Embarrassed confederate	
	M	SD	M	SD	M	SD	M	SD
Observers' empathic embarrassment	1.66[a]	1.31	1.37[a]	1.23	.89[b]	.76	2.08[c]	1.36
Observers' perspective-taking	3.97[a]	1.29	3.84[a,c]	.96	3.14[b]	1.05	4.39[c]	1.03
Observers' mimicry frequency	1.29[a]	1.15	2.92[b]	2.87	1.57[a]	2.29	2.60[b]	2.60

Note. Emotions with different alphabetical superscripts across columns denote significant differences between conditions ($p < .05$).

Perspective-Taking

A two-way ANOVA on participants' perspective-taking revealed no main effect of Prior Experience $F(1, 90) = .38$, $p = .54$, $\eta_p^2 = .00$. As predicted, there was a significant main effect of Embarrassment Display, $F(1, 90) = 6.25$, $p = .01$, $\eta_p^2 = .07$. Participants who saw the embarrassed confederate engaged in more perspective-taking ($M = 4.10$, $SD = 1.02$), compared with the unembarrassed confederate ($M = 3.56$, $SD = 1.24$). There was also a Display × Experience interaction, $F(1, 90) = 9.50$, $p = .003$, $\eta_p^2 = .10$. Planned comparisons showed that there was no effect of embarrassment display among participants who sang ($F(1, 90) = .18$, $p = .68$, $\eta_p^2 < .01$), but that emotion displays prompted increased perspective-taking for participants who had the same prior experience, $F(1, 90) = 14.97$, $p < .001$, $\eta_p^2 = .14$.

As with the analysis of empathic embarrassment, we tested whether prior experience increased perspective-taking when participants viewed embarrassment displays. Among those who observed these displays, dancers trended toward more perspective-taking than singers, $F(1, 90) = 3.18$, $p < .08$, $\eta_p^2 = .03$. Among those who saw no displays, singers reported stronger perspective-taking than dancers, $F(1, 90) = 6.56$, $p = .01$, $\eta_p^2 = .07$. Thus, as with empathic embarrassment, prior experience with the confederate's situation tended to *increase* participants' perspective-taking when displays were present. When signs of embarrassment were absent, however, prior experience *decreased* perspective-taking.

Nonverbal Mimicry

Mimicry scores for 10 participants were unavailable because of technical errors with the recording equipment. Thus, analyses involving these observational data were based on 84 participants. There was a main effect of Embarrassment Display, in which participants who observed the confederate's displays showed a higher frequency of the same actions ($M = 2.77$, $SD = 2.73$), compared to those who saw no displays ($M = 1.43$, $SD = 1.77$), $F(1, 80) = 6.67$, $p = .01$, $\eta_p^2 = .08$. There was no main effect of Prior Experience, $F(1, 80) = .001$, $p > .05$, nor was there a significant interaction, $F(1, 80) = .35$, $p > .05$. Thus, only Embarrassment Displays were related to mimicry of the confederate.

Path Analyses

The experimental manipulations were contrast coded (−1 for No Display vs. 1 for Embarrassment Display and −1 for Singing vs. 1 for

Dancing). Only participants with no missing mimicry data ($n = 84$) were considered. All variables were centered. To test the predictions that the target's embarrassment displays would affect participants' empathic embarrassment by heightening both their perspective-taking and their mimicry responses, we constructed a path model (see Figure 3) with direct effects of Embarrassment Displays upon Perspective-Taking, Nonverbal Mimicry, and Empathic Embarrassment. We further added paths leading from both Perspective-Taking and Nonverbal Mimicry to Empathic Embarrassment and also included associations between Perspective-Taking and Mimicry.

We examined the path model using *Mplus* version 4 software (Muthen & Muthen, 2006). Given the directional nature of our hypotheses, and because our sample was somewhat smaller than is typically recommended for path models (Kline, 2005), we used one-tailed tests of direct and indirect effects. We examined several fit indices, including Normed Chi-Square (χ^2/df), Comparative Fit Index (CFI), Tucker-Lewin Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR).[3]

After constructing the basic path model, we used a stepwise multigroup modeling procedure to further test whether the Prior Experience manipulation moderated participants' perspective-taking and mimicry responses to the target's displays. The results of these multigroup tests can be seen in Table 2: A model in which the unstandardized paths, means, and variances were fully constrained between the groups (Model 0) was tested against a model in which the path from Display → Empathic Embarrassment was allowed to vary between the Prior Experience groups (Model 1). Model 1 was then tested against a model in which we additionally and cumulatively freed the paths Display → Perspective-Taking (Model 2) and Display → Mimicry (Model 3). A model was deemed to be an improvement if the fit indices were acceptable and the size of the chi-square value was significantly reduced (using two-tailed tests). As seen in Table 2, freeing the Display → Empathic Embarrassment path (M1) offered an improvement over the constrained model (M0). Freeing the Display → Perspective-Taking path (M2) offered further improvement, suggesting that Prior Experience indeed moderated these responses, but freeing the path Display → Mimicry (M3) did not, suggesting no moderation

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[3] A χ^2/df value of < 3.0, CFI and TLI > .90, and RMSEA and SRMR ≤ .08 indicate a model's good fit to the data (Browne & Cudeck, 1993; Hu & Bentler, 1999; Kline, 2005).
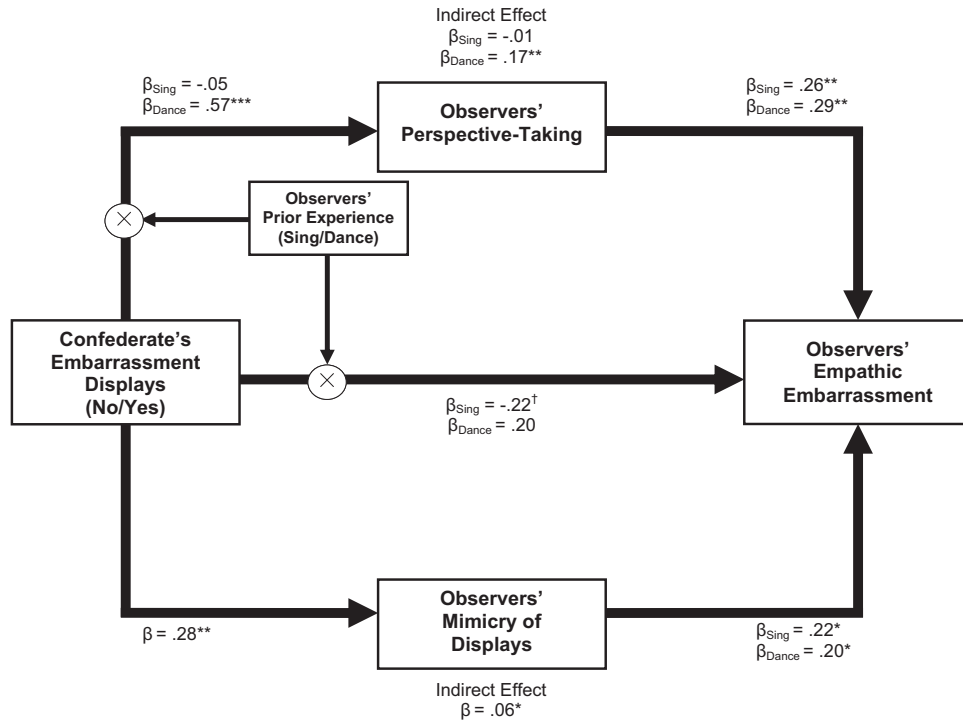
Indirect Effect
$\beta_{Sing} = -.01$
$\beta_{Dance} = .17**$

$\beta_{Sing} = -.05$
$\beta_{Dance} = .57***$

$\beta_{Sing} = .26**$
$\beta_{Dance} = .29**$

Observers' Perspective-Taking

Observers' Prior Experience (Sing/Dance)

Confederate's Embarrassment Displays (No/Yes)

Observers' Empathic Embarrassment

$\beta_{Sing} = -.22^{\dagger}$
$\beta_{Dance} = .20$

$\beta = .28**$

Observers' Mimicry of Displays

$\beta_{Sing} = .22*$
$\beta_{Dance} = .20*$

Indirect Effect
$\beta = .06*$

Figure 3. Dual pathway model of empathic embarrassment (Study 2). $^{\dagger} p < .07.$ $^{*} p \leq .05.$; $^{**} p \leq .01.$ $^{***} p \leq .001.$ All tests of direct and indirect effects are one-tailed. Model fit: $\chi^2(12) = 6.04$, $p = .91$; $\chi^2/df = .50$; CFI = 1.00; TLI = 1.17; RMSEA = .00; SRMR = .08.

by Prior Experience. On the basis of these results, Model 2 was retained as the final model. We further examined other orderings for unconstraining the paths[4] and alternative models[5] (e.g., treating participants' nonverbal behaviors as an expressive outcome of their own embarrassment, as opposed to mimicry), but these additional examinations consistently yielded less desirable model fits.

The final model and the standardized coefficients of the various paths can be seen in Figure 3. The results largely mirrored the results of the ANOVAs, with effects of Embarrassment Display upon both Empathic Embarrassment and Perspective-Taking moderated by Prior Experience, and a main effect of Display upon Mimicry. The path Display → Empathic Embarrassment was not significant for either group. However, within the Dancing group, the Display manipulation trended toward a positive effect ($B = .25$, $SE = .20$, $p = .10$, one-tailed), whereas it trended toward a negative relationship for the Singing group ($B = .26$, $SE = .17$, $p = .07$, one-tailed). Mimicry and perspective-taking were also not significantly associated ($B = -.11$, $SE = .27$, $p = .34$, one-tailed). In support of the hypothesis that emotion expressions would prompt spontaneous perspective-taking, Displays increased Dancing participants' Perspective-Taking ($B = .73$, $SE = .17$, $p < .001$, one-tailed) but not Singing participants' ($B = -.05$, $SE = .16$, $p = .37$, one-tailed). The Perspective-Taking → Empathic Embarrassment path was also significant for both groups ($B = .29$, $SE = .11$, $p = .005$, one-tailed). Sobel tests further suggested that Displays exerted indirect effects upon Empathic Embarrassment through Perspective-Taking for Dancers ($B = .21$, $SE = .10$, $p = .01$, one-tailed) but not for Singers ($B = -.02$, $SE = .05$, $p = .37$, one-tailed). Thus, perspective-taking appeared to be an avenue

through which emotion displays affected empathic embarrassment, but only when observers had shared a prior experience with the confederate.

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[4] We additionally tested for alternative orderings of the successive models, in which 1) Display → Perspective-Taking was freed before Display → Empathic Embarrassment, 2) Display → Mimicry was freed before either of the other two paths, and 3) Display → Mimicry was freed after Display → Empathic Embarrassment, but before Display → Perspective-Taking. We additionally examined whether freeing the paths Perspective-Taking → Empathic Embarrassment and Mimicry → Empathic Embarrassment contributed to a better model fit. None of these alternatives produced a more desirable fit or further significant model improvement, as compared with Model 2.

[5] We additionally tested alternate models. Of particular concern was whether participants' nonverbal behaviors should be considered "read-outs" of their own embarrassment while watching the confederate, as opposed to mimicry responses. We used chi-square difference tests and Akaike's Information Criterion (AIC) to examine which model provided a better fit to the data. A model with a significantly lower chi-square value and a lower AIC should be regarded as the better-fitting model. As compared with the alternate "emotion read-out" interpretation, our accepted model was preferable on the basis of both the chi-square test ($\Delta\chi^2 = 7.93$, $\Delta df = 2$, $p = .02$) and the AIC comparisons ($AIC_{Accepted} = 1150.92$, $AIC_{Alternate} = 1154.85$). Similar comparisons with alternate models treating perspective-taking as resulting from conscious embarrassment ($\Delta\chi^2 = 12.68$, $\Delta df = 3$, $p < = .005$; AIC = 1157.60), or both mimicry *and* perspective-taking as outcomes of conscious embarrassment ($\Delta\chi^2 = 19.44$, $\Delta df = 3$, $p < .001$; AIC = 1164.37) also could not be considered better-fitting models.

Table 2

Model Improvement Tests and Fit Indices for Study 2 Path Models

Model	χ^2	df	$\Delta\chi^2$	χ^2/df	CFI	TLI	RMSEA	SRMR
M0: Basic model (fully constrained)	20.50	14		1.46	.82	.84	.10	.13
M1: Display → empathic embarrassment free	16.70	13	3.80*	1.29	.90	.90	.08	.11
M2: Display → perspective-taking free	6.04	12	10.66***	.50	1.00	1.17	.00	.08
M3: Display → mimicry free	5.67	11	.37	.52	1.00	1.17	.00	.07

Note.   Successive models represent a cumulative freeing of paths. $\Delta\chi^2$ for each model indicates the change from the previous model. Model 2 was retained (see Figure 3). χ^2 *p*s of all models > .05.
* $p \le .05$.   ** $p \le .01$.   *** $p \le .001$.

Supporting the hypothesis that emotion expressions would prompt participants' nonverbal mimicry, the unmoderated path Display → Mimicry was also significant for both groups ($B = .67$, $SE = .25$, $p = .004$, one-tailed), as was the path Mimicry → Empathic Embarrassment ($B = .11$, $SE = .05$, $p = .02$, one-tailed). A Sobel test further showed that Embarrassment Displays exerted indirect effects upon Empathic Embarrassment through Mimicry ($B = .07$, $SE = .04$, $p = .05$, one-tailed), suggesting that emotion displays heightened observers' enactment of the same behaviors, which enhanced empathic embarrassment.

Discussion

Study 2 tested whether nonverbal embarrassment displays would activate two different processes leading to observers' empathic embarrassment. We predicted that nonverbal cues would increase empathic embarrassment through mimicry, as well as via participants' spontaneous perspective-taking. We also expected embarrassment displays to activate these processes more strongly when participants had prior experience with the target's embarrassing circumstances.

The confederate's nonverbal embarrassment displays prompted matching behaviors in observers, but this effect was not additionally heightened by the prior experience manipulation. Further, path analysis demonstrated that embarrassment displays exerted modest indirect effects via nonverbal mimicry. This finding suggests that mimicry occurs automatically in absence of overt motivations to inhibit these behaviors (Dijksterhuis & Bargh, 2001). However, considering that the other paths leading from embarrassment displays *were* moderated by this experiential manipulation, this pattern of results also suggests a weaker role for mimicry in fostering conscious empathy than suggested by primitive contagion theories (e.g., Hatfield et al., 1992, 1994, 2008).

Also as predicted, the embarrassed confederate prompted stronger perspective-taking in observers, but only when they had earlier performed the confederate's task. Prior experience with a target's exact situation thus had effects that extended beyond mere experience with the emotion, more generally (cf. Batson et al., 1996; Shearn et al., 1999). Apparently, observers were inclined to feel the sting of the other's expressed emotion more intensely when they were familiar with the particular details of her situation, presumably because this first-hand knowledge allowed for a richer processing of the emotional experience (Barsalou et al., 2003; Niedenthal, 2007; Preston & De Waal, 2002). These enhancing effects of prior experience are similar to those in earlier studies, in which targets' expressions of distress were held constant (e.g., Batson et al., 1996).

This insight into the other's circumstance, however, was also responsible for an unexpected *decrease* in perspective-taking and empathy when observers with prior experience saw an *un*embarrassed target. In comparison, even participants who saw no displays, but also had no first-hand frame of reference, were able to engage in more perspective-taking and subsequently experience stronger empathic embarrassment. Complementing this finding, Preston and colleagues (2007) found that when individuals could strongly relate to another's emotional experience, they showed subjective, physiological, and neurological responses similar to when they recalled personal experiences from their own histories. When participants could not relate to the other's experience, they showed diminished responding on all measures. This prior research concentrated on whether participants could relate to the other's *situation*, however, and targets' expressions and experiences of emotion were always present in the various scenarios. In contrast, the present study did not take the target's experience and expressions of emotion for granted.

The pattern of results we obtained when manipulating the target's emotion displays suggests that these nonverbal cues actually influence the extent to which observers are able to relate to a target, within the context of sharing a prior experience. This notion has intuitive appeal. Individuals who have embarrassed themselves by delivering a bad classroom presentation, for example, may have difficulty understanding someone who gives an equally disastrous talk without appearing at all bothered. In such a situation, embarrassment expressions likely signal not only an awareness of poor performance, but also recognition that the situation and others' evaluations are important. In contrast, an absence of embarrassment displays may communicate indifference and perhaps even signal that empathy is unnecessary or undesired. Thus, this finding extends the research of Preston and colleagues by showing that having experienced another person's situation might not lead to a *de facto* increase in perspective-taking or empathic emotion, and may even minimize such responses, when the emotion-eliciting aspects of the situation are not confirmed by a target's own behaviors.

General Discussion

Individuals' capacity to experience empathic emotions in a variety of circumstances is an indispensable component of social functioning. Until quite recently, the extent to which combinations of particular social cues such as nonverbal signals from a target, the immediate

situation, and interpersonal similarity are responsible for triggering these different empathy-related processes has remained relatively unexplored in empirical studies. A challenge for comprehensive theories of empathy, which have predominantly focused upon reactions to others' overt distress, has been to explain how such responses can also occur when targets do not display situation-congruent emotions. In the present research, we investigated whether observers' perspective-taking and mimicry of a target's emotion expressions can both lead to the enhancement of empathic embarrassment.

In Study 1, we manipulated a target confederate's emotion displays to demonstrate that such cues are sufficient, but not necessary, for fostering empathic embarrassment in observers. As expected, embarrassment displays increased participants' own embarrassment. By manipulating participants' perspective-taking, we also found support for the suggestion (e.g., Davis, 1996; Hoffman, 2008) that empathic embarrassment can additionally result from conscious cognitive processes in absence of a target's emotion expressions. The results of Study 2 further showed that emotion displays can activate *spontaneous* perspective-taking, and that this process served as a mediating route to empathic embarrassment. Our findings thus contribute to the existing literature by demonstrating that perspective-taking, whether initiated purposefully (Study 1) or elicited spontaneously by another's emotion displays (Study 2), can indeed promote empathic embarrassment.

Results of Study 2 further demonstrated the potential for emotion displays to activate both automatic and higher-order cognitive paths to empathic embarrassment. The confederate's nonverbal behaviors prompted observers' mimicry and their spontaneous perspective-taking, and path analyses suggested indirect effects on empathy through both of these routes. Further, mimicry and perspective-taking were not significantly correlated in Study 2, suggesting that they are distinguishable processes (cf. Van Kleef, 2009).

Contrary to expectations, mimicry was not further moderated by the prior experience manipulation. Thus, our assumption that prior experience may enrich simulation and thereby reinforce motor mimicry was not supported. This may suggest that motor mimicry is a more automatic and unconscious process than is an observer's report of their subjective emotions (cf. Eisenberg et al., 1991; Hoffman, 1984, 2008; McHugo et al., 1985). The differential effects of our two manipulations upon mimicry and subjective emotions, respectively, also suggest that mimicry may facilitate or support empathic embarrassment (supporting the embodiment perspective), without being directly responsible for conscious experiences of concordant feelings (in opposition to the primitive contagion view). It may also be that mimicry of some emotions is less affected by social context. Recent studies examining imitation and interpersonal similarity have found, for example, that emotions serving an affiliative social function are mimicked regardless of group membership (Bourgeois & Hess, 2008; Van der Schalk et al., in press). Because embarrassment displays serve affiliative functions (Keltner & Buswell, 1997), these prior findings may explain the lack of moderation. Because this research is the first to demonstrate the mimicry of embarrassment displays and its subsequent effects upon empathic embarrassment, additional studies should also aim to distinguish whether this process is further enhanced by contextual factors (i.e., the target's clearly embarrassing situation, as compared with a more ambiguous circumstance) that were not varied in the present study.

Emotion displays influenced empathy not only through mimicry-mediated pathways, as implicated in primitive emotional contagion theory (e.g., Hatfield et al., 1992, 1994, 2008), but also by prompting observers' perspective-taking (e.g., Batson et al., 1996; Hoffman, 1984, 2008). Participants' prior experience further qualified this link, activating perspective-taking when displays were present but not when the target remained cool and aloof. These results underscore the utility of examining spontaneous perspective-taking rather than manipulating such activity though explicit instruction. It also highlights the importance of considering the external cues salient to observers when studying the effects of perspective-taking and prior experiences upon empathy. Combined with the aforementioned mimicry findings, these results suggest dual influences of emotion displays upon empathic responses that are at least partially qualified by observers' own emotional histories.

Strengths and Limitations

The present research had a number of methodological strengths, compared with earlier investigations of empathic embarrassment, as well as certain limitations. First, our direct manipulation of embarrassment displays, when combined with a standard perspective-taking manipulation in Study 1, allowed us to demonstrate that the target's nonverbal cues were sufficient, but not necessary, for activating empathic responding. On the other hand, it is perhaps unclear what was inferred from the unembarrassed confederate's behavior. Participants who saw no embarrassment displays still perceived a modest level of embarrassment in both studies. In this case, observers' impressions may still have been swayed by situational cues (cf. Marcus, Wilson, & Miller, 1996). Study 1 participants in the objective condition also reported moderate levels of perspective-taking, suggesting that this may, to some extent, be a reflexive response to an emotionally charged context (Hoffman, 2008; Ruby & Decety, 2004) that could have subsequently colored perceptions of the target's feelings. Including unambiguous expressions of other emotions (e.g., amusement), in addition to a "neutral" condition, may advance understanding of this issue.

Another innovation concerned our treatment of perspective-taking as a spontaneous process in Study 2, as opposed to an experimentally manipulated activity. On the other hand, the concomitant collection of empathic embarrassment and perspective-taking self-reports makes it difficult to rule out the possibility that observers' emotions were affected by conditioning or direct association processes (Hoffman, 1984, 2008; Shearn et al., 1999), which then resulted in the sense of being in the other's place (cf. Eisenberg et al., 1991; Hoffman, 1984, 2008). Indeed, others have acknowledged that this is likely a bidirectional process (e.g., Eisenberg et al., 1991; Preston & De Waal, 2002) and that several modes of empathic arousal can operate simultaneously (Hoffman, 1984, 2008). In a similar vein, one could question whether some of the behaviors interpreted as mimicry in our study may in fact have been symptoms of observers' own emotional reactions (e.g., Hess, Philippot, & Blairy, 1998). A comparison of participants' observed behaviors and their self-reported emotions speaks against such an interpretation, however. According to such a perspective, behavioral differences between the two No Display conditions should have mirrored participants' self-reports, but Singing participants instead reported equivalent embarrassment while showing differential frequencies of embarrassment-related behaviors. Further,

path analyses testing these alternative explanations provided less optimal model fits, bolstering our confidence in a dual mediation interpretation. Nevertheless, additional studies might address these issues further, for example, by overtly manipulating observers' mimicry of embarrassment cues.

Finally, although including observations of participants' nonverbal responses was a strength of the present research, we relied on more traditional self-report methods to examine participants' spontaneous perspective-taking and their experiences of empathic embarrassment. Future studies should consider also including complementary physiological measures, such as neural imaging (e.g., Lamm et al., 2007; Ruby & Decety, 2004), skin conductance (e.g., Miller, 1987), or skin temperature (Shearn et al., 1999). Such data can contribute further insights into processes underlying the empathic responses studied here, and also address issues related to potential demand effects upon participants' self-reports.

Directions for Future Research

Although we interpret the relative differences between our experimental conditions as indicative of two separate processes that can influence empathy, participants' modest scores of self-reported emotion suggest that additional factors may further intensify or qualify these experiences. As mentioned earlier, it would be interesting to replicate our findings when incorporating live confederate performances, as opposed to using videotapes, or to manipulate prior interaction history between a live confederate and participants. Both of these factors likely heighten empathic embarrassment (cf. Miller, 1987; Preston & De Waal, 2002).

In addition, although we focused on embarrassment that is experienced as a result of being the center of attention while doing something foolish (e.g., Apsler, 1975; Sabini et al., 2000), it is clear that there are other types of social misfires that can foster this emotion, such as committing a social *faux pas*, or "sticky situations" that challenge one's conventional roles (Sabini et al., 2000). It would be useful for future research to examine whether the processes examined here equally account for empathic embarrassment in these other types of situations.

Finally, many studies explicitly examining empathy have focused on emotional reactions such as sympathy and personal distress (e.g., Batson et al., 1997; Batson et al., 1996; Lamm et al., 2007; Van Kleef et al., 2008) but less often on discrete and convergent emotional responses. We examined empathic embarrassment in this research, because it is one of the few discrete emotions for which both perspective-taking and targets' displays of emotion have been considered in prior studies, although typically with quite different methodological and analytical approaches (e.g., Marcus & Miller, 1999; Marcus et al., 1996). We can imagine many situations in which these processes could exert similar influences on other discrete empathic emotions such as anger, disgust, pride, or fear. It is therefore important to examine how our findings generalize to other types of emotions and associated events, because particular expressions likely communicate different social messages about targets' intentions and relational orientations (Fischer & Manstead, 2008; Keltner & Haidt, 1999; Van Kleef, 2009). Incorporating a social-functional account of emotions in this manner can likely shed further light on the multiple processes resulting in empathic responding.

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