Research Article

It Takes Two

The Interpersonal Nature of Empathic Accuracy

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ABSTRACT—*Although current theories suggest that affective empathy (perceivers' experience of social targets' emotions) should contribute to empathic accuracy (perceivers' ability to accurately assess targets' emotions), extant research has failed to consistently demonstrate a correspondence between them. We reasoned that prior null findings may be attributable to a failure to account for the fundamentally interpersonal nature of empathy, and tested the prediction that empathic accuracy may depend on both targets' tendency to express emotion and perceivers' tendency to empathically share that emotion. Using a continuous affect-rating paradigm, we found that perceivers' trait affective empathy was unrelated to empathic accuracy unless targets' trait expressivity was taken into account: Perceivers' trait affective empathy predicted accuracy only for expressive targets. These data suggest that perceivers' self-reported affective empathy can indeed predict their empathic accuracy, but only when targets' expressivity allows their thoughts and feelings to be read.*

Empathy—the capacity to feel the emotions of other individuals—is so critical to social relationships and prosocial behavior (Eisenberg & Miller, 1987) that its absence is a hallmark of psychopathy and sociopathy (Blair, 2005). As a psychological construct, empathy comprises multiple processes that interact to produce an empathic response. Although these processes have been characterized in various ways (e.g., Davis, 1994; Preston & de Waal, 2002; Wispe, 1986), most theories suggest that empathy consists of both affective and cognitive components. Affective empathy refers to perceivers' experience of sharing the emotions they observe in social targets and is often measured as a stable trait through self-report questionnaires (e.g., Davis, 1983; Mehrabian & Epstein, 1972). Cognitive empathy is the

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ability of a perceiver to understand the internal states of targets and is often measured as the accuracy with which a perceiver can assess the thoughts and feelings a target is experiencing (*empathic accuracy*, a term first coined by Ickes, Stinson, Bissonnette, & Garcia, 1990).

Surprisingly, work attempting to tie these aspects of empathy together by using trait measures of perceivers' affective empathy to predict their empathic accuracy (i.e., cognitive empathy) has not revealed a consistent relationship (Hall, 1979; Ickes et al., 1990; Levenson & Ruef, 1992; but see also Riggio, Tucker, & Coffaro, 1989). As a result, researchers have largely abandoned the hunt for "accurate empathic perceivers" (Ickes, 2003, chap. 7; Ickes et al., 2000) and have focused instead on situations and states that lead to empathic accuracy (Pickett, Gardner, & Knowles, 2004; Simpson, Orina, & Ickes, 2003; Stinson & Ickes, 1992). However, the causes of this noncorrespondence between trait and behavioral measures of empathy have remained mysterious.

This disparity between trait measures of affective empathy and behavioral measures of empathic accuracy can be explained in two ways. First, these measures differ in the types of empathy they tap, and it is possible that affective and cognitive empathy are not related. Understanding the emotions of other individuals might be independent of experiencing those emotions—a dissociation seen, for example, in sociopaths (Blair, 2005). However, this explanation seems unlikely given recent work demonstrating strong relationships between experiencing emotions and recognizing them in other people. For example, brain-damaged patients whose experience of disgust or fear is diminished also have difficulty perceiving those emotions in others (Adolphs et al., 2005; Calder, Keane, Manes, Antoun, & Young, 2000). Furthermore, recent studies indicate that similar patterns of brain and autonomic activation are produced when people observe the emotions of others and directly experience those emotions themselves (Decety & Jackson, 2006). Together, these findings suggest that perceivers understand targets' emotions by experiencing those emotional states themselves and then translating that shared experience into assessments of how the targets feel (Gallese, Keysers, & Rizzolatti, 2004; Niedenthal,

Barsalou, Ric, & Krauth-Gruber, 2005). These suggestions, however, have not been confirmed experimentally.

A second possibility is that trait affective empathy and empathic accuracy do not correlate because of a more general disparity between self-reported trait measures and behavior. Contemporary models suggest that personality is best understood as an interaction between a person and the situations he or she encounters (Mischel & Shoda, 1995), such that reported traits predict behavior, but only if situations contain relevant psychological ingredients. For example, aggressive people, when praised, may not display behavior different from that of nonaggressive people. Instead, situations in which aggressive individuals are provoked are necessary in order for their traits to predict their behavior. Such "if-then" relationships form stable signatures of personality that take both dispositions and situations into account (Shoda, Mischel, & Wright, 1989).

In the study reported here, we applied this logic to an analysis of the variables predicting empathic accuracy. Because empathy is a fundamentally interpersonal process, the relevant psychological ingredients of the situation can include the dispositions and states of both the empathic perceiver and his or her interaction partner, as the qualities of both individuals can influence the expression of if-then personality signatures (Zayas, Shoda, & Ayduk, 2002). Thus, simultaneously assessing both the perceiver and the partner, or target, could shed light on previous difficulties in identifying accurate empathic perceivers by highlighting the interpersonal conditions under which the perceiver's traits predict empathic accuracy. More broadly, the results of such an analysis could serve as an exemplar of the way in which interpersonal variables affect intrapersonal behavioral signatures.

One situational factor that is potentially important in predicting empathic accuracy is the emotional expressiveness of targets. For example, if targets are highly expressive—that is, if they tend to behave in accordance with their experienced emotion (Gross & John, 1997)—then perceivers' trait affective empathy may improve their empathic accuracy, allowing them to both experience and insightfully assess targets' affective states. However, if targets express little emotion, the type and quality of the affective signal may leave less for perceivers to share and decode. Thus, a relationship between perceivers' trait affective empathy and behavioral empathic accuracy may exist, but only if social targets are sufficiently expressive.

The present study tested this hypothesis using an empathic-accuracy protocol in which perceivers continuously assessed the affective states of targets (see Ickes et al., 1990; Levenson & Ruef, 1992). Our aim was to clarify the relationship between perceivers' tendency to experience the emotions of other individuals (as indexed by trait affective empathy) and their empathic accuracy (measured as a performance variable) by taking into account the emotional expressiveness of social targets. Unlike most previous studies in this area, this study included and assessed the traits of many targets as well as many per-

ceivers, so we were able to examine differences in empathic accuracy across multiple perceiver-target combinations. We predicted that greater trait affective empathy would increase empathic accuracy, but only when targets were high in trait expressivity.

METHOD

The study had two phases. In the initial target phase, we collected a library of stimulus videos in which social targets discussed emotional events in their lives. The targets then watched their own videos and made continuous ratings of how positive or negative they had felt while speaking. In the subsequent perceiver phase, an unrelated group of perceivers watched these videos and continuously rated how they thought the target was feeling during each video. Our measure of empathic accuracy was the correlation between perceivers' ratings of targets' feelings and targets' ratings of their own feelings.

Target Phase

Fourteen participants (the targets; mean age = 26.5 years; 7 female, 7 male) first completed the 10-item Berkeley Expressivity Questionnaire (BEQ; see Gross, 2000), which measures respondents' sense of how much their emotional experience is visible to other people (e.g., "Whenever I feel positive emotions, people can easily see exactly what I am feeling"). The targets were then videotaped while discussing the four most positive and four most negative personal events they were comfortable describing. After discussing each event, targets used 9-point Likert scales to make summary ratings of the overall valence and arousal of the emotion they had experienced while talking.

After discussing all eight emotional events, targets watched the videotapes of themselves talking and used a sliding 9-point Likert scale (similar to the rating dial used by Levenson & Ruef, 1992) to continuously rate the level of positive or negative affect they had felt at each moment (1 = *extremely negative*, 9 = *extremely positive*). After completing the session, targets were asked for their permission to use their videotapes in the subsequent empathic-accuracy protocol.

A subset of stimulus videos was chosen for use in the second phase of the study. Three participants' videos were excluded from selection because these participants either refused to allow their videos to be used or showed insufficient variability in their self-ratings. Of the remaining clips (*n* = 88), 40 were chosen (21 negative, 19 positive), such that positive and negative clips had comparable means and standard deviations on the summary ratings of overall arousal.

Perceiver Phase

Forty participants (mean age = 19.2 years; 18 female, 22 male) completed the second phase for course credit or $15. Equipment failure rendered data from 7 participants unusable, leaving

a sample of 33 perceivers (mean age = 18.9 years; 16 female, 17 male).

Perceivers first completed the Balanced Emotional Empathy Scale (BEES; Mehrabian & Epstein, 1972), which taps respondents' self-perceived affective empathy. Then, each perceiver viewed 20 stimulus clips (half of the total target set). A pseudorandomized Latin square design ensured that perceivers saw equal numbers of positive and negative clips, and that each clip was viewed by approximately the same number of perceivers. While watching each clip, perceivers continuously rated how positive or negative they believed the target was feeling, using the same scale that the targets had employed.

Analyses

Data reduction and time-series correlations were performed using Matlab 7.1 (Mathworks, 2005). Affect-rating data were averaged across 5-s periods, and each 5-s mean served as one point in the subsequent time-series analyses. Data from each clip were transformed using the Cochrane-Orcutt method to remove first-order autocorrelation (Ostrom, 1990). Targets' affect ratings were then correlated with perceivers' affect ratings of the targets, yielding a separate coefficient, referred to as *accuracy*, for each perceiver-clip combination. Overall, 660 accuracy scores (33 perceivers × 20 clips per perceiver) were used in the subsequent analyses. All correlation coefficients were r-to-Z transformed so that they were normally distributed for the analyses.

Empathic accuracy was modeled as a function of our predictors using a mixed linear model. To take nonindependence in the data into account, we treated both targets and perceivers as random effects. Mixed-model analyses were performed using SAS 9.1 (SAS Institute, 2002).

RESULTS

Results indicated that, overall, perceivers were moderately accurate at assessing the affect of targets (mean raw r between targets' and perceivers' ratings = .47). Accuracy did not differ depending on the valence of the situation targets described (d = 0.01, p_{rep} = .19), and perceivers' mean accuracy did not vary significantly by gender, $t(31)$ = 0.50, p_{rep} = .62, d = 0.16. Initial analyses indicated that accuracy scores varied greatly (from 0.99 to −0.82, SD = 0.37), which allowed us to examine how this variance was predicted by both perceiver and target variables.

Perceiver and Target Effects on Accuracy

We first examined whether perceivers' trait affective empathy or targets' expressivity predicted empathic accuracy. Taken alone, perceivers' trait affective empathy (BEES score) had no significant relationship to empathic accuracy (r = .04, p = .22, p_{rep} = .71). In contrast, the expressivity (BEQ score) of targets was a significant predictor of perceivers' empathic accuracy (r = .21,

p < .005 p_{rep} = .97). Expressivity had no relationship to the intensity of affect reported by targets in their summary valence or arousal ratings (r = .11, p > .4, p_{rep} = .52); thus, the effect of targets' expressivity does not simply reflect emotional experience becoming stronger as targets' expressivity increased.

Though less expressive targets were less readable, they were not completely unreadable by perceivers. Post hoc analyses of targets in the bottom quartile of expressivity (162 observations) revealed that their clips still produced moderate accuracy that was significantly higher than chance (mean r = .34), $t(161)$ = 10.47, p < .001, p_{rep} > .99, d = 1.64. Perceivers also correctly assessed the valence of the bottom quartile's clips, successfully differentiating positive from negative clips (mean ratings = 2.83 for negative clips and 5.64 for positive clips), $t(160)$ = 10.53, p < .001, p_{rep} > .99, d = 1.65.

Target-Perceiver Interactions Affecting Accuracy

We next examined whether targets' expressivity and perceivers' affective empathy interacted to predict accuracy and found a significant interaction effect (b = 0.07, p < .02, p_{rep} = .93): Greater target expressivity improved the empathic accuracy of perceivers with high affective empathy more than that of perceivers with low affective empathy. We then generated predicted slopes for the low and high extremes of this model, and we found that trait affective empathy had no relationship to empathic accuracy when targets were least expressive (b = −0.02, p > .5, p_{rep} = .45), but did predict empathic accuracy when targets were most expressive (b = 0.14, p < .02, p_{rep} = .95; see Fig. 1).

DISCUSSION

Although empathy is a topic of great interest to psychological scientists, the relationship between affective and cognitive as-
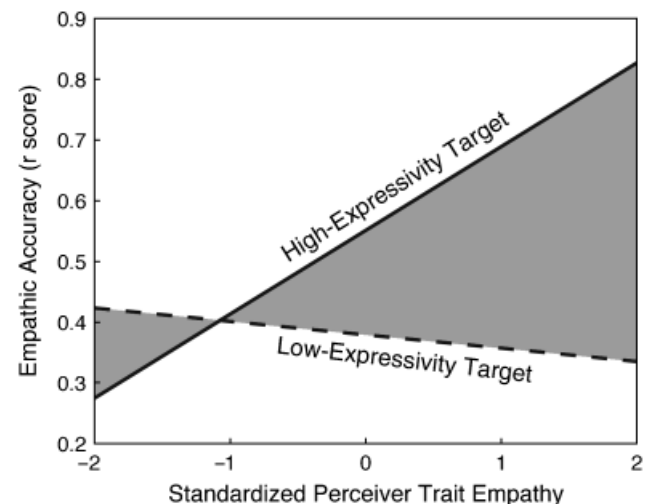

Fig. 1. Empathic accuracy as a function of the perceiver's trait empathy, for targets at the upper and lower extremes of emotional expressivity. The shaded area highlights the range of variation in accuracy due to variation in targets' expressivity.

pects of empathy has remained unclear. Especially puzzling has been the unexpected but frequently observed noncorrespondence between trait measures of affective empathy and performance measures of cognitive empathy, such as empathic accuracy (Hall, 1979; Ickes et al., 1990, 2000; Levenson & Ruef, 1992).

The present research sheds light on one reason trait empathy has failed to predict empathic accuracy. Following the interactionist model of Mischel and Shoda (1995), we predicted that trait affective empathy would demonstrate a relationship with empathic accuracy, but only under certain interpersonal conditions: specifically, when the target's inner experience is translated into expressive behavior. Using a naturalistic method that calculated empathic accuracy as the time-course correlation between targets' self-reported emotions and perceivers' judgments of those emotions, we obtained evidence consistent with such a model.

We found that targets' expressivity generally predicted empathic accuracy, and also interacted with perceivers' trait empathy in predicting empathic accuracy. Critically, perceivers' trait affective empathy was unrelated to empathic accuracy when targets were low in expressivity (as shown by the dashed line in Fig. 1), but did predict accuracy when targets were highly expressive (as shown by the solid line). This interaction effect is not attributable to more expressive targets simply feeling stronger emotions, as there was no relationship between targets' expressivity and their self-reported affective experience. Furthermore, low-expressivity targets still produced moderate (and well-above-chance) levels of accuracy across perceivers, a finding that suggests low expressivity does not involve a wholesale lack of affective signal on which perceivers could base their judgments. Instead, it appears that low-expressivity targets provide affective signal, albeit not of a type that can be used more effectively by perceivers high in affective empathy than by perceivers low in affective empathy.

Perceivers high in affective empathy report sharing the emotions of other individuals, and contemporary theories of empathy suggest that perceivers translate this shared emotion into an understanding of targets' internal states (Decety & Jackson, 2006; Niedenthal et al., 2005). Low- and high-expressivity targets, when discussing emotional events, could provide affective signals that differ in either quality or type, and such differences could affect the ability of affectively empathic perceivers to share and understand those signals. It is possible, for example, that the affective information provided by low-expressivity targets is not as temporally dynamic as the information provided by high-expressivity targets. If that is true, empathic perceivers may pick up on subtle shifts in affective state given off only by expressive targets.

Another possibility is that low- and high-expressivity targets differ qualitatively in the response channels through which they convey emotion (i.e., affectively laden language, facial expressions, etc.), and that high-empathy perceivers are especially attuned to the kinds of information highly expressive individuals

convey. Consistent with this notion, previous work suggests that verbal content may be especially predictive of accuracy in general (Gesn & Ickes, 1999; Hall & Schmid Mast, 2007). However, this work has not examined the relationships among usage of different communicative channels, targets' expressivity, and perceivers' empathy. Exploring these relationships could further clarify the sources of accuracy in different interpersonal settings and remains an important direction for future research.

Broadly, the current data support the use of an interactionist if-then approach to predicting interpersonal outcomes, by indicating that empathic accuracy can best be modeled by taking into account the states and traits of both perceivers and targets. Although this conclusion may seem obvious, it is not apparent in the majority of prior work. Most studies of empathic accuracy have focused on one type of variable at a time, emphasizing the traits or the motivations of perceivers (Pickett et al., 2004; Simpson, Ickes, & Blackstone, 1995), the traits of targets (Snodgrass, Hecht, & Ploutz-Snyder, 1998), or the personal relationships between targets and perceivers (Stinson & Ickes, 1992). The current data provide evidence that targets' and perceivers' traits should be modeled simultaneously because they can interact with each other. An interpersonal approach to empathic accuracy dovetails with statistical and theoretical models of person-perception accuracy as involving unique interactions between perceivers and targets (e.g., Kenny & Albright, 1987).

Modeling the interpersonal dynamics that predict empathic accuracy could prove useful to understanding numerous situations involving inferences about nonstrangers, such as communication between close relationship partners or dyadic interactions between therapists and clients. Previous work has shown that both overall accuracy and the sources of information on which it is based differ depending on whether perceivers are inferring the thoughts and emotions of close others or of strangers (Stinson & Ickes, 1992). For example, close friends often discuss topics about which they have common knowledge or shared opinions, and this common background renders targets more readable and heightens perceivers' accuracy. However, little systematic work has explored how the dispositions of close others, or variability in the types of relationships they have, affect accuracy. Future work should examine how traits such as expressivity and empathy influence people's expressive behavior and accuracy when interacting with close others, as well as strangers.

An interactionist approach to empathic accuracy may also be important for clinical and personality researchers. Much research in these fields focuses on the ways that purported traits (e.g., extraversion, neuroticism) or disorders (e.g., social phobia, borderline personality disorder, autism) predict perception or behavior in social situations, but does not closely examine the effect of interaction partners on the expression of social-cognitive traits. Taking interaction partners and situational qualities into account will allow personality and clinical researchers to specify the circumstances under which personality variables

predict behavior or behavioral deficits. For example, a recent study demonstrated that subjects with autism spectrum disorder perform poorly on empathic-accuracy tasks, but that their performance improves to near normal when they infer thoughts and feelings from a structured interaction (Ponnet, Buysse, Roeyers, & De Clercq, 2007). Understanding the interpersonal situations that allow for such improvements will be important to developing a deeper understanding of such disorders and potential related interventions.

Our methods differed from those used in some previous empathic-accuracy studies (e.g., Ickes et al., 1990; Stinson & Ickes, 1992), in which perceivers attempted to predict, verbally, the content of targets' thoughts and feelings at discrete points in a videotape. Our accuracy measure instead tapped perceivers' acuity in assessing fluctuations in targets' affect over time. Therefore, we cannot generalize the conclusions of our study to accuracy for the specific content of targets' thoughts and feelings. Nonetheless, in prior work that has not taken targets' expressivity into account, this accuracy measure has shown no significant correlation with trait affective empathy (Levenson & Ruef, 1992), which supports the idea that the type of empathic accuracy we assessed fits well with an interpersonal if–then approach.

In conclusion, previous research has shown a surprisingly weak relationship between perceivers' trait measures of affective empathy and their empathic accuracy, calling into question whether trait measures of empathy have value in predicting empathic behavior. The current data suggest that these measures indeed can predict empathy-related behavior, but that their predictive power can be revealed only by also taking targets' expressivity into account and adopting an interpersonal perspective on empathic processes.

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