Relationships between Dimensions of Attachment and Empathy

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Two studies explored the relationship between dimensions of attachment (closeness, trust, anxiety) and three forms of empathy (empathic concern, perspective taking, personal distress). In Study 1, 134 college students completed Collins and Read’s (1990) Adult Attachment Scale and Davis’ (1983) Interpersonal Reactivity Index. Greater trust and comfort with closeness were associated with greater EC and PT, whereas greater anxiety was associated with greater PD. In Study 2, 261 college students completed the Study 1 measures, along with several additional attachment measures, and a measure assessing interdependent self-construal (Cross, Bacon, & Morris, 2000). Results were generally consistent with those found in Study 1: comfort with closeness predicted greater EC and PT, whereas greater anxiety predicted greater PD. Results also revealed links between an interdependent self-construal, secure attachment dimensions, and the more adaptive forms of empathy, but provided mixed support for the hypothesis that an interdependent self-construal mediates the relationship between attachment and empathy.

Interpersonal relationships function to fulfill human needs of closeness, safety, and security. One of the most influential frameworks for studying functioning in interpersonal relationships has been Bowlby’s theory of attachment (Bowlby, 1969, 1973, 1980). It holds that early experiences with one’s primary caregiver lay the foundation for functioning in subsequent relationships via the development of internal working models of the self (as worthy of love, or not) and others (as trustworthy or not). Inspired by Hazan and Shaver’s (1987) frequently-cited article, many recent studies have focused on how adult attachment styles (and their underlying dimensions) shape functioning in interpersonal relationships. Consistent with Bowlby’s (1979, p. 129) claim that attachment processes operate “from the cradle to the grave,” a growing number of studies have confirmed that individuals with a secure adult attachment style – characterized by comfort with closeness (low avoidance) and a positive view of self (low anxiety) – enjoy higher

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These findings raise an important question, namely, why does a secure attachment lead to healthier functioning in interpersonal relationships? The present paper attempts to shed light on this question by examining the relationship between adult attachment and empathy (Davis, 1980, 1983). We hypothesize that a secure attachment style (or dimensions related to a secure style) should be positively related to empathic concern (EC) (i.e., tender concerned feelings for others in need) and perspective taking (PT) (i.e., the ability to adopt the perspective of another), whereas less secure styles (or dimensions) should be associated with greater personal distress (PD) (i.e., feelings of discomfort in emergency situations). We develop this hypothesis by reviewing relevant theory and research on attachment, empathy, and functioning in interpersonal relationships, and then report two preliminary studies on the relationship between attachment and empathy. Study 1 examines the relationship between three dimensions of attachment (comfort with closeness, trust, and anxiety; Collins & Read, 1990) and three forms of empathy (EC, PT, and PD; Davis, 1980, 1983). Study 2 replicates and extends these findings using a broader sampling of categorical and continuous attachment measures (Bartholomew & Horowitz, 1991; Collins & Read, 1990; Fraley, Waller, & Brennan, 2000; Hazan & Shaver, 1987), and exploring whether an interdependent self-construal (i.e., the extent to which people think about themselves in terms of their close relationships; Cross, Bacon, & Morris, 2000) mediates the relationship between attachment and empathy. In so doing, the present studies help to extend past studies on adult attachment which, to date, have suggested a link between adult attachment and empathy, but have, to our knowledge, not yet directly tested this relationship (cf. Batson & Shaw, 1991; Schoenrade, Batson, Brandt, & Loud, 1986).

**Attachment Theory**

While the basics of attachment theory are probably well known to most readers, a brief review of the theory is warranted, given the central role attachment theory accords to the construct of empathy. At its core, attachment theory (Bowlby, 1969, 1973, 1980) assumes that early experiences with one’s primary caregiver lay the foundation for functioning in subsequent relationships via the development of internal working models of the self (as a person worthy of love, or not) and others (as trustworthy, or not). Early work with infants established the existence of three attachment “styles” (secure, avoidant, ambivalent) based on the
nature of parent-child interactions in the so-called “strange situation” (Ainsworth, Blehar, Waters, & Wall, 1978), styles which were shown to depend in large part on the quality of parental (maternal) caregiving (for a review, see DeWolff & van IJzendoorn, 1997). These attachment styles, in turn, were shown to influence functioning in peer relationships (for reviews, see Allen & Land, 1999; Thompson, 1999). In terms of the present paper, two findings are particularly noteworthy. First, secure attachments were more likely to develop when the primary caregiver accepted the child (i.e., EC) and was sensitive to the child’s needs (i.e., PT). Second, children with a secure attachment style were shown to exhibit greater empathy when compared to children with less secure attachment styles (Denham, 1994; Kestenbaum, Farber, & Sroufe, 1989).

**Adult Attachment and Functioning in Interpersonal Relationships**

Building on the work of early attachment theorists and researchers, Hazan and Shaver (1987) proposed that attachment styles formed in infancy might very well carry forward into adulthood. Furthermore, adults might reasonably be expected to approach romantic relationships according to one of the three styles originally identified by researchers working with infants (secure, anxious/ambivalent, avoidant). Working within this framework, Hazan and Shaver used the typical descriptions of the three infant attachment styles to develop a three-category measure of attachment, whereby adults select the one attachment style that best describes their approach to close relationships. Hazan and Shaver subsequently demonstrated meaningful links between secure, anxious/ambivalent, and avoidant adult attachment styles, quality of romantic relationships, mental models of relationships, and history of parental caregiving. Ever since the publication of Hazan and Shaver’s classic article, researchers have been keenly interested in understanding how adult attachment styles (and/or their underlying dimensions) develop, operate, and impact both intrapersonal and interpersonal functioning (for recent reviews, see Bartholomew & Perlman, 1994; Feeney, 1996; Hazan & Shaver, 1994; Simpson & Rholes, 1998). One important and consistent finding in the adult attachment literature is that individuals with a secure adult attachment (or those scoring higher on dimensions related to the secure style) report greater satisfaction in interpersonal relationships (Collins & Read, 1990; Feeney, 1996; Feeney & Noller, 1990, 1991; Hazan & Shaver, 1987; Kobak & Hazan, 1991; Kobak & Sceery, 1988; Levy & Davis, 1988; Simpson, 1990; Simpson et al., 1992). These findings obviously raise the question, why?

One possible explanation, which has received surprisingly little direct attention, is that individuals with a secure attachment style exhibit more empathic concern and perspective taking (Davis, 1983) – which in turn
facilitate functioning in interpersonal relationships (Davis & Oathout, 1987, 1992; Franzoi, Davis, & Young, 1985). Similarly, it is possible that individuals with less secure attachments evidence greater personal distress (Davis, 1983) – which in turn negatively impacts functioning in interpersonal relationships (Davis & Oathout, 1987, 1992). Initial support for this hypothesis comes from at least three sources. First, a secure attachment and empathy both imply a willingness to approach others, and both serve to facilitate functioning in interpersonal relationships. Second, as noted earlier, children with a secure attachment style evidence greater levels of empathy, and are more likely to have had parents who modeled empathy. Third, a number of recent studies have demonstrated that adults with a secure adult attachment provide greater support and comfort (i.e., caregiving) to relationship partners (Carnelley, Pietromonaco, & Jaffe, 1996; Feeney, 1996; Fraley & Shaver, 1998; Kunce & Shaver, 1994; Simpson et al., 1992; Simpson, Rholes, & Phillips, 1996) and strangers (Westmaas & Silver, 2001) faced with a variety of stress-provoking situations (e.g., impending separations; difficult discussions; life crises).

While the previous findings suggest a link between adult attachment and empathy, little research has directly examined the relationship between adult attachment and the three forms of empathy noted earlier (i.e., EC, PT, and PD; Davis, 1980, 1983). In one exception, Erlanger (1996), using a sample of college students, found no overall differences between secure, anxious/ambivalent, and avoidant groups on either EC or PT. Erlanger did find, however, a significant relationship between attachment style and PD. Specifically, the anxious/ambivalent group reported higher levels of PD as compared to secure and avoidant groups. Viewed in light of the theory and research reviewed earlier, Erlanger’s failure to find strong relationships between attachment and empathy is somewhat puzzling. A closer examination, however, suggests one plausible explanation for these findings, namely, that categorical measures of attachment tend to suffer from a number of measurement problems which can weaken their association with related constructs. Three commonly noted problems with such categorical measures include the fact that (a) individuals are (typically) forced to choose just one (multifaceted) style, despite the fact that various aspects of that style may not accurately reflect their own style; (b) individuals are (typically) not allowed to rate the degree to which any given style characterizes their own style, preventing finer discriminations among individuals with the same style, and (c) single-item indicators are inherently less reliable than multi-item measures (Brennan, Clark, & Shaver, 1998; Fraley & Waller, 1998). Given these problems, the present studies focus (primarily) on the relationship between continuous measures of attachment and empathy.
Assuming that adult attachment is best described in terms of its underlying dimensions, it is appropriate to consider how the two major dimensions (closeness and anxiety) might relate to EC, PT, and PD. As a general hypothesis, we expect that a secure attachment style (and those dimensions related to a secure style; high comfort with closeness, high trust, low anxiety) should be positively related to EC (Hypothesis 1) and PT (Hypothesis 2), whereas less secure styles (or dimensions) should be associated with greater PD (Hypothesis 3). A closer look at the studies on adult attachment and caregiving suggest a qualification to this general hypothesis, namely, that the two attachment dimensions may differ in the strength of their relationship with these three forms of empathy. More specifically, several studies suggest that EC and PT (i.e., indicators of warmth, understanding, and support) should be more closely related to the attachment dimension of closeness, whereas PD (i.e., an indicator of self-reported distress in emergency situations) should be more strongly related to the attachment dimension of anxiety (Hypothesis 4) (e.g., Feeney, 1996; Simpson et al., 1992, 1996; Westmaas & Silver, 2001).

As a preliminary test of these hypotheses, we conducted two studies using a convenience sample of college students. Study 1 examined the relationship between Collins and Read’s (1990) Adult Attachment Scale (AAS) and Davis’ (1980, 1983) measure of empathy. Study 2 replicated and extended Study 1 by including a broader sampling of attachment measures, and testing the additional hypothesis that the relationship between attachment and empathy may be mediated by an interdependent self-construal (Hypothesis 5) (Cross et al., 2000). We based this last prediction on two lines of reasoning. First, Cross et al. have demonstrated that individuals scoring high on their measure of interdependent self-construal score higher on EC, and to a lesser extent, PT. Second, according to attachment theory (Bowlby, 1969, 1973, 1980), individual differences in attachment styles reflect varying working models of self (as an individual worthy of love, or not) and others (as dependable and willing to provide love, or not). Within this framework, it seemed reasonable to assume that individuals with a secure style (or those scoring higher on dimensions related to a secure style), who hold positive working models of both self and others, and who feel more comfortable being close to others, would be more likely to define themselves in terms of their relationships. On the other hand, it seemed likely that individuals with less secure styles, especially those with negative working models of others, who feel uncomfortable with closeness, would be less likely to define themselves in terms of their close relationships with others.
STUDY 1

Method
Participants and Procedure. College students (N = 134; 26 Men, 108 Women; Median Age = 19) enrolled in a course on relationship development completed a survey containing all measures in class in exchange for extra credit, and were debriefed at the end of the quarter. The sample was composed of Caucasians (92.5%), Asian Americans (3%), and African Americans (0.7%). The remaining students identified with an unspecified ethnic group (4%). The majority of students (60%) indicated that they were not currently in a dating relationship.

Attachment Dimensions. We assessed attachment using Collins and Read’s (1990) Adult Attachment Scale (AAS). The AAS contains 18 attachment-related statements, rated on a scale from 1 (disagree strongly) to 7 (agree strongly), the majority of which come from Hazan and Shaver’s (1987) three-category Adult Attachment Styles questionnaire. Collins and Read’s factor analysis of these statements yielded three factors labeled depend (e.g., I find it difficult to allow myself to depend on romantic partners; \( \alpha = .78 \): all alphas based on current study), closeness (e.g., I feel comfortable sharing my private thoughts and feelings with my partner; \( \alpha = .63 \)) and anxiety (e.g., I worry that romantic partners won’t care about me as much as I care about them; \( \alpha = .65 \)).

Empathy Dimensions. Participants also completed three of the four subscales from Davis’ (1980, 1983) Interpersonal Reactivity Index (IRI), including EC (\( \alpha = .79 \)), PT (\( \alpha = .80 \)), and PD (\( \alpha = .78 \)). Each scale contains seven likert-type items rated on a scale from 1 (never describes me) to 5 (always describes me). For example, one EC item reads “I often have tender concerned feelings for people less fortunate than me”; one PT item reads “I try to look at everybody’s side of a disagreement before I make a decision;” and one PD item reads “I sometimes feel helpless when I am in the middle of a very emotional situation.” Several studies support the ecological validity of these three forms of empathy with regard to functioning in interpersonal relationships (Davis & Oathout, 1987, 1992; Franzoi et al., 1985).

Results
Data Screening. Data screening revealed no problems with skewness or kurtosis, and no univariate outliers were detected (\( p < .001 \), two-tailed). Subsequent inspection of the data supported the assumptions of linearity and homoscedasticity. However, multiple regression analyses revealed a single multivariate outlier within the regression analyses on EC (Studentized Deleted Residual < -3.00), and perspective-taking (SDR > 3.00). Each case was dropped within its respective analyses, and both cases were dropped prior to computing the simple correlations.
Test of Hypotheses. As a first step in our analyses, we computed simple correlations between the dimensions of attachment and empathy (see Table 1). Consistent with Hypotheses 1 and 2, EC and PT were positively correlated with dimensions of attachment reflecting a secure attachment (closeness and depend/trust), and PT was negatively associated with the anxiety attachment dimension. Consistent with Hypothesis 3, PD was positively correlated with the anxiety attachment dimension, and negatively correlated with the closeness attachment dimension.

TABLE 1 Simple Correlations and Regression Models Predicting Three Forms of Empathy: Study 1

<table>
<thead>
<tr>
<th>Variables</th>
<th>Empathic Concern</th>
<th>Perspective Taking</th>
<th>Personal Distress</th>
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Summary

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<th>Adj-R² F</th>
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<td>.09 4.13**</td>
<td>.26 12.65**</td>
</tr>
<tr>
<td>Change</td>
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<td>.12 5.51**</td>
<td>.24 13.99**</td>
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</table>

Note. Gender (1 = men, 2 = women). N’s range from 132 to 133 following removal of outliers. CR = Collins and Read (1990). R² change and F change values for attachment dimensions, over and above a regression model with gender as the sole predictor. Because R² change does not adjust for the number of model parameters, it can, as shown under PT, exceed the overall Adj-R² for the entire model. + p < .10, * p < .05, ** p < .01 (two-tailed).

Given the statistical overlap between the attachment dimensions, and our hypothesis that the attachment dimensions might differ in the strength of their relationship with various forms of empathy, we subsequently conducted three multiple regression analyses to examine each attachment dimension’s unique relationship with the three forms of empathy (see Table 1). Because gender showed significant relationships with EC and PD, we included it as a covariate in our analyses.

As shown in Table 1, EC and PT were uniquely predicted by the depend attachment dimension, and women reported marginally higher levels of EC. In contrast, PD was uniquely predicted by the anxiety and closeness dimensions, and women reported higher levels of PD. In sum, the findings provided reasonable support for Hypothesis 4, which predicted that the closeness and/or depend attachment dimensions should...
be more closely associated with the adaptive forms of empathy (EC and PT), whereas the anxiety attachment dimension should be more closely associated with the maladaptive form of empathy (PD).

**Discussion**

The purpose of the present study was to examine the relationship between three dimensions of attachment identified by Collins and Read (1990) and three forms of empathy identified by Davis (1980, 1983). As predicted, attachment dimensions associated with a secure attachment (closeness and depend/trust) were positively associated with empathic concern (EC) and perspective taking (PT), whereas the anxiety attachment dimension was negatively associated with PT, and positively associated with personal distress (PD). One potentially important result of the present study was the finding that the "depend" dimension was the only unique predictor of both EC and PT. One possible explanation for this finding is simply that the depend dimension showed a higher reliability when compared to the closeness and anxiety dimensions (see Table 1). Another possible explanation is that EC and PT are, indeed, more closely associated with the depend dimension. If true, the latter interpretation seems to suggest the importance of retaining a distinction between the depend and closeness dimensions, rather than combining them into a broader "approach/avoidance" dimension.

To test the stability and generalizability of our initial findings, we conducted a second study in which we incorporated a number of additional categorical and continuous measures of attachment. Based on past research, we anticipated that the continuous measures – where individuals are defined by a latent variable measured by the scale items they rate – would be more closely associated with the various forms of empathy than would the categorical measures of attachment – where individuals pick the attachment style that best describes them. As noted in the introduction, we also hypothesized that the relationship between attachment and empathy might be mediated by an interdependent self-construal; Cross et al., 2000).

**STUDY 2**

**Method**

*Participants and Procedure.* College students ($N = 261; 88$ Men, $172$ Women, 1 Unidentified; Median Age = 19) enrolled in an introductory psychology course completed a survey containing all measures in class for extra credit. The sample was composed of Caucasians (85.4%), Asian Americans (5.0%), African Americans (1.1%), Hispanics (2.3%), and Native Americans (0.8%). The remaining students identified with an
Attachment. To examine the replicability and generalizability of the findings from Study 1, we assessed attachment using a variety of measures. As in Study 1, participants completed Collins and Read’s (1990) AAS (i.e., depend, closeness, and anxiety). Participants also completed Fraley, Waller and Brennan’s (2000) Experiences in Close Relationships – Revised scale (ECR-R), an updated version of the Experiences in Close Relationships scale (Brennan et al., 1988) based on item response theory, which assesses two major attachment dimensions including avoidance (α = .93) and anxiety (α = .87). Each subscale is comprised of 18 attachment-related statements, which participants rate on a scale from 1 (strongly disagree) to 7 (strongly agree). The majority of the items come from Brennan et al.’s original ECR scale.

Participants also completed two categorical measures of attachment. First, participants completed Hazan and Shaver’s (1987) Adult Attachment Styles questionnaire where individuals select one of three attachment styles that best describes them: secure, avoidant, anxious/ambivalent. Second, participants completed Bartholomew and Horowitz’s (1991) Relationship Questionnaire, based on Bowlby’s notion of working models of self and others. Here, individuals select one of four styles that best describes them: secure (positive working models of self and others), fearful-avoidant (negative models of self and others), preoccupied (negative self model, positive other model) and dismissing-avoidant (positive self model, negative other model). The first three categories on the RQ correspond to Hazan and Shaver’s secure, avoidant, and anxious/ambivalent categories, whereas the fourth style represents a new avoidant classification.

Empathy. As before, participants also completed EC (α = .78), PT (α = .78), and PD (α = .74) subscales from Davis’ (1983) IRI (see Study 1).

Interdependent Self-Construal. Finally, participants completed Cross et al.’s (2000) Relational-Interdependent Self-Construal Scale (RISC). The RISC assesses the extent to which people think about themselves in terms of their close relationships. Respondents indicate their level of agreement with 11 items using a scale from 1 (strongly disagree) to 7 (strongly agree) (e.g., In general, my close relationships are an important part of my self-image). The scale demonstrates high internal reliability, and good convergent and discriminant validity (α = .86).

Results
Attachment Dimensions and Empathy. We begin by discussing the relationship between the dimensional attachment measures and the three forms of empathy. Data screening on the continuous measures revealed no problems with skewness or kurtosis, but one univariate outlier was
detected on EC ($p < .001$, two-tailed). Subsequent inspection of the data supported the assumptions of linearity and homoscedasticity. Multiple regression analyses revealed a total of four multivariate outliers (SDR $> \pm 3.00$), one of which corresponded to the univariate outlier. Given that they constituted a small percentage of the cases, these observations were dropped within their respective analyses, and all four cases were dropped prior to computing the simple correlations between all variables. Table 2 shows the simple correlations and multiple regressions bearing on the relationship between the dimensions of attachment and empathy.

### Table 2: Simple Correlations and Regression Models Predicting Three Forms of Empathy: Study 2

<table>
<thead>
<tr>
<th>Variables</th>
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<tr>
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<td>Model 2</td>
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Note: Gender (1 = men, 2 = women). N’s range from 229 to 238, following removal of outliers (see text). Following removal of outliers (see text). CR = Collins and Read (1990); FWB = Fraley, Waller, and Brennan (2000). $R^2$ change and $F$ change values for attachment dimensions, over and above a regression model with gender as the sole predictor. $+ p < .10$, $* p < .05$, $** p < .01$ (two-tailed).

While the results did not provide a perfect replication of the findings reported in Study 1, the overall pattern of correlations between the various attachment dimensions and the three forms of empathy was generally consistent with predictions. Consistent with Hypothesis 1, greater EC was associated with higher scores on Collins and Read’s
(1990) closeness and depend attachment dimensions, lower scores on Fraley et al.’s (2000) anxiety and avoidance dimensions, and lower scores on Collins and Read’s anxiety dimension. In partial support of Hypothesis 2, scores on PT showed similar associations with the attachment dimensions, but the correlations were weaker, and the anxiety attachment dimensions were unrelated to PT. In support of Hypothesis 3, PD showed positive correlations with the anxiety attachment dimensions from both scales, and somewhat weaker correlations with the avoid, closeness, and depend attachment dimensions.

In order to assess the unique relationship between the various attachment dimensions and the three forms of empathy, we next conducted a series of multiple regression analyses. To avoid problems of multicollinearity introduced by the strong theoretical and empirical overlap between the two attachment scales used in Study 2, we did not include the two attachment inventories in the same regression analysis. Rather, as shown in Table 2, we conducted six multiple regression analyses (3 measures of empathy x 2 attachment inventories), using gender as a covariate in each analysis.

We begin by discussing the relationship between empathy and the attachment dimensions from Collins and Read’s (1990) scale (top half of Table 2). In contrast to Study 1, the depend dimension was not a unique predictor of EC or PT, but the closeness dimension was a unique predictor of EC, in partial support of Hypothesis 1 and 4. Consistent with Study 1, the anxiety attachment dimension was the best predictor of PD, in support of Hypotheses 3 and 4, but closeness also showed a unique (but weaker, and negative) relationship with PD (Hypothesis 1).

As shown in the bottom half of Table 2, the three forms of empathy showed similar relationships with the attachment dimensions from Fraley et al.’s (2000) inventory. EC was uniquely predicted by (a lack of) avoidance (in support of Hypothesis 1 and 4), and PD was best predicted by the anxiety attachment dimension (Hypothesis 3 and 4), and to a lesser extent, the avoidance dimension (Hypothesis 3). One difference between the results from the two attachment inventories is that the Fraley et al. dimension of closeness was a unique predictor of PT (Hypothesis 2), whereas the Collins and Read dimension of closeness was not.

Mediation Analyses. A second goal of Study 2 was to test the hypothesis that an interdependent self-construal would mediate the relationship between attachment and empathy (Hypothesis 5). For the mediation model to receive support, several conditions must be met: the predictor variable (attachment dimensions) should relate to (a) the criterion variable (empathy) and (b) the potential mediator (interdependent self-construal); (c) the potential mediator should relate to the criterion variable; and (d) the relationship between the predictor variable and the
criterion variable should be reduced to non-significant levels (full mediation), or reduced in strength (partial mediation) after statistically controlling for the potential mediator (cf. Baron & Kenny, 1986).

In line with Hypothesis 5, scores on Cross et al.'s interdependent self-construal scale correlated in the anticipated direction with the attachment dimensions of closeness ($r = .24, p < .01$) and trust ($r = .25, p < .01$) from Collins and Read's (1990) scale, avoidance ($r = -.25, p < .01$) from Fraley et al.'s (2000) scale, and the two adaptive forms of empathy, EC ($r = .27, p < .01$) and PT ($r = .16, p < .05$). Combined with the earlier results linking the various attachment dimensions with various forms of empathy (mediation condition (a)), these results provide additional support for the hypothesis that an interdependent self-construal may mediate the relationship between attachment and empathy (mediation conditions (b) and (c) noted above). To test the final mediation condition, we conducted a number of multiple regression analyses in which we examined the relationship between the various attachment dimensions and EC and PT, after controlling for an interdependent self-construal (because PD was not related to an interdependent self-construal, the mediation model for PD is already rejected). The results of these analyses did not provide strong support for the mediation hypothesis: while the relationship between attachment dimensions (close and lack of avoidance) and EC and PT was reduced after controlling for an interdependent self-construal, the reverse was equally true. As such, the present results do not allow a clear statement regarding the temporal ordering of these various constructs. Nevertheless, the meaningful overlap between attachment, interdependent self-construal, and empathy points to the potential value of future research in this area.

Attachment Categories. For purposes of comparison, we also analyzed the relationship between empathy and two categorical measures of attachment (Bartholomew & Horowitz, 1991; Hazan & Shaver, 1987). For each attachment measure, we conducted a multivariate analysis of variance (MANOVA) on the three forms of empathy, using attachment category and gender as predictor variables. Preliminary screening of the data revealed no problems with skewness or kurtosis. Additional screening supported the assumptions of linearity and homogeneity of variance, and revealed no univariate outliers. However, one multivariate outlier (Mahalonobis Distance = 16.33, $p < .001$) was identified using the Bartholomew and Horowitz (1991) measure, and was thus deleted.

The first analysis failed to reveal a significant relationship between Hazan and Shaver's (1987) three category attachment measure and the three forms of empathy at the multivariate level, Wilk's Lamda = .96, $F(6, 434) = 1.51, p = .17$. The second analysis did, however, reveal a significant relationship between Bartholomew and Horowitz's (1991)
four category attachment measure the three forms of empathy at the multivariate level, Wilk’s Lamda = .87, $F(9, 509) = 3.28$, $p < .001$. Univariate analyses of variance revealed a significant association between attachment category and EC, $F(3, 211) = 2.83$, $p < .05$, and PD, $F(3, 211) = 6.89$, $p < .001$ – results for PT were not significant ($F < 1$). Focusing on EC, Tukey tests revealed only one significant difference: individuals reporting a secure style scored significantly higher on EC ($M = 3.95$) than did those reporting a fearful-avoidant style ($M = 3.72$) ($p < .05$). Turning to PD, Tukey tests revealed two significant differences: individuals reporting a secure style scored significantly lower on PD ($M = 2.30$) than did those reporting either a preoccupied ($M = 2.74$) or a fearful-avoidant style ($M = 2.80$) ($p's < .001$). The effect for gender was significant in both MANOVAs ($p's < .001$), but the gender by attachment interactions were not. MANOVAs using Type I Sums of Squares, which provide more power with unequal cell sizes, yielded identical results.

**Discussion**

The purpose of Study 2 was twofold. First, we sought to replicate and extend findings from Study 1 using a broader set of attachment measures. Second, we sought to test the hypothesis that an interdependent self-construal (Cross et al., 2000) might mediate the relationship between attachment and empathy. With regard to the former, the present results partially replicated findings from Study 1. Both studies demonstrated that secure attachment dimensions (depend in Study 1, closeness in Study 2) predicted higher EC and PT, whereas the anxiety attachment dimension (in both studies) predicted higher PD. Analyses using categorical attachment measures evidenced weaker results, providing additional support for the superiority of attachment dimensions over attachment categories. We suspect that these results reflect the fact that dimensional measures of attachment resolve several of the problems associated with categorical measures of attachment where individuals choose a single, multi-faceted style rather than rating the extent to which they agree with a larger list of attachment-related items (cf. Brennan et al., 1998; Fraley & Waller, 1998). With regard to our second purpose, our results provided limited support for the claim that an interdependent self-construal mediates the relationship between attachment and empathy. Nevertheless, an interdependent self-construal was positively associated with the attachment dimension of closeness, as well as EC and PT.

**GENERAL DISCUSSION**

Ever since the publication of Hazan and Shaver’s (1987) important article, interest in adult attachment has been high. The present studies sought to extend this literature by examining the relationship between
attachment and empathy within a college sample. Based on the literature, we predicted that dimensions related to a secure attachment (low anxiety and low avoidance) would facilitate positive forms of empathy (EC and PT), whereas dimensions related to an insecure attachment (high anxiety and avoidance) would be associated with a maladaptive form of empathy (PD). Both studies supported this general hypothesis. Results also revealed some preliminary support for the prediction that secure attachment and positive forms of empathy would be positively associated with an interdependent self-construal (Cross et al., 2000). The present results help to extend past research on adult attachment processes, and may serve as the basis for targeted interventions for individuals experiencing attachment-related difficulties in interpersonal relationships, issues to which we now turn.

As noted in the introduction, many studies have demonstrated links between a secure adult attachment and healthier functioning in interpersonal relationships, and a number of recent studies have also demonstrated that individuals with a secure attachment style exhibit greater caregiving behavior toward partners and strangers faced with a stressful situation. The present studies extended this work by demonstrating links between adult attachment and empathy. More specifically, the present results suggest one possible explanation for the link between adult attachment, interpersonal functioning, and caregiving, namely, that individuals with a secure attachment experience greater EC and PT, which in turn facilitate functioning in interpersonal relationships (e.g., Davis & Oathout, 1987, 1992; Franzoi et al., 1985), and presumably serve as prerequisites for supportive caregiving. Because we did not directly assess interpersonal functioning and/or caregiving in on-going romantic/close relationships, future research will be necessary to clearly test whether empathy serves as a mediator between adult attachment, healthier interpersonal functioning, and greater caregiving.

In addition to identifying one potential mediator in the relationship between attachment and functioning in interpersonal relationships, the present research provides new insight into the underlying basis of adult attachment. Consistent with the notion that adult attachment is based on working models of the self and others, our results suggest that individuals scoring low on avoidance are more likely to report an interdependent self-construal (Cross et al., 2000). These results, while preliminary, would seem to identify another potential mediator in the relationship between adult attachment and functioning in interpersonal relationships, namely, an interdependent self-construal. Indeed, individuals scoring low on avoidance (and high in an interdependent self-construal) may engage in more constructive relationship behaviors, in part, because such individuals blur the line between self and partner.
On an applied note, the present results might also serve to identify potential points of intervention for individuals experiencing attachment-related difficulties in interpersonal relationships. In particular, our results suggest that individuals with insecure attachments might experience an improvement in their relationships if they can be trained to experience more EC and greater PT. Given the links between attachment, empathy, and an interdependent self-construal, interventions might also focus on encouraging individuals with an insecure attachment to define themselves in more interdependent terms, assuming that future research can clearly demonstrate that an interdependent self-construal does, in fact, influence empathy.

Limitations and Future Directions

While we believe the current studies help shed additional light on adult attachment processes, the present results are most appropriately treated as preliminary, in light of several limitations. First, the correlational nature of the data prevents conclusive statements regarding causality. As such, future longitudinal studies will be necessary to clearly determine whether empathy serves as a mediator in the relationship between adult attachment and functioning in interpersonal relationships, and whether an interdependent self-construal may mediate the relationship between attachment and empathy. Second, the relationships between attachment and empathy, while statistically significant, were not especially large, indicating that much of the variance in empathy is explained by factors other than attachment. This is especially true of PT in Study 2, where the attachment measures and gender explained only three percent of the variance in PT. Finally, given that both studies used convenience samples of (mostly Caucasian) college students, the majority of whom were not currently in a romantic relationship, the present results may be somewhat limited in generalizability. While we see no theoretical reason why such results should fail to replicate within a broader sample, it would nevertheless be wise to replicate these results across a broader sample of adults and types of relationships.

REFERENCES


Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and


Footnotes

1 It should be noted, however, that planned comparisons on a subsample of sophomores and juniors revealed that avoidant group scored lower on EC, relative to the anxious/ambivalent group.

2 Several studies suggest that attachment is best described in terms of two underlying dimensions (i.e., anxiety and avoidance; Brennan, Clark, & Shaver, 1998). For purposes of direct comparison, and because the depend and closeness dimensions might show meaningful differences, we retained Collins and Read’s (1990) three dimensions.

3 In Study 1, one PD item was inadvertently omitted. Nevertheless, the consistency in findings for PD across Studies 1 and 2 suggest that the current (six-item) scale is representative of the original (seven-item) scale.

4 Univariate tests indicated a significant relationship between attachment category and PD ($p = .05$), but Tukey post hoc tests failed to reveal any significant differences between the three groups. As such, these results are not discussed further.

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The Relationships Between Volunteering to Help and Perspective-Taking Ability, Experience of Empathic Concern, and Self-Report Empathic Inclinations. Journal of Interdisciplinary Graduate Research, Dec 2001. The hypothesis that these dimensions of empathy would be related to prosocial helping behavior was only partially supported as perspective-taking ability proved to be the only significant predictor. The better participants’ perspective-taking ability, the more likely they were to demonstrate prosocial behavior.