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Elizabeth A. Neustadt a, Tomas Chamorro-Premuzic b & Adrian Furnham a

a University College London, UK
b Department of Psychology, Goldsmiths College, University of London, UK

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Attachment at work and performance

Elizabeth A. Neustadt*, Tomas Chamorro-Premuzicb and Adrian Furnhama

aUniversity College London, UK; bDepartment of Psychology, Goldsmiths College, University of London, UK

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This paper examines the relations between self-reported attachment orientation at work and personality, self-esteem, trait emotional intelligence (aka emotional self-efficacy), and independently assessed career potential and job performance. Self-report data were collected from 211 managers in an international business in the hospitality industry; independent assessments of these managers’ job performance and career potential were separately obtained from the organization. A self-report measure of romantic attachment was adapted for application in the work context; a two-factor solution was found for this measure. Secure/autonomous attachment orientation at work was positively related to self-esteem, trait emotional intelligence, extraversion, agreeableness, and conscientiousness, and also to job performance. Not only was secure/autonomous attachment orientation at work statistically predictive of job performance, but the new measure also made a distinct contribution, beyond conscientiousness, to this prediction.

Keywords: adult attachment; job performance; personality; emotional intelligence; work relations

Introduction

Within the voluminous literature rooted in attachment theory (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1969/1982, 1973, 1980), a fledgling sub-strand is developing, concerned with adults’ attachment orientation or style as this bears on their functioning at work (e.g., Elliot & Reis, 2003; Hazan & Shaver, 1990; Joplin, Nelson, & Quick, 1999; Mikulincer & Shaver, 2007; Schirmer & Lopez, 2001; Simmons, Gooty, Nelson, & Little, 2009). Most researchers working in this area have tended to treat attachment as if it were a personality-like trait that extends across contexts, and attachment orientation or style (terms used interchangeably in this paper) has tended to be measured using one or another of the existing instruments originally developed to assess attachment in the context of romantic or other personal dyadic relationships.

One exception to this approach to measurement, the Self-Reliance Inventory (Quick, Joplin, Nelson, & Quick, 1992), was originally developed from probative interviews with successful executives, and subsequently refined drawing from content generated by management graduate students (Joplin et al., 1999). In their 1999 paper, these researchers reported finding no statistical relationships between

*Corresponding author. Email: beth.neustadt@neustatus.com
attachment orientation and performance but, as they noted, academic performance "may not be an effective proxy for performance at work" (Joplin et al., 1999, p. 790). Disappointingly, in a more recent application of the Self-Reliance Inventory (Simmons et al., 2009), the researchers actually hypothesized (and then found) no direct relationship between secure attachment and performance. Nonetheless, as they reported, overall findings of their study suggested that trust (between supervisor and worker) "may be the mediator through which the benefits of a secure, healthy attachment style are translated into enhanced performance" (Simmons et al., 2009, p. 242). Simmons et al. appear to presume that attachment orientation or style, once established, becomes a stable personality-like trait; therefore apparently they did not consider that supervisors who are successful at establishing the trust of their workers might likewise be eliciting from these workers a more secure attachment style at work than would otherwise be the case.

Recently, Richards and Schat (2011) adapted a self-report measure of romantic attachment for application in research on employee behavior at work. Their intention was "to draw upon insights from attachment theory to understand phenomena in the workplace" (Richards & Schat, 2011, p. 169). They adapted, for use as a "context independent" measure of attachment, Brennan et al.'s (1998) Experiences in Close Relationships (ECR) Scale, which assesses adult attachment to a romantic partner on two continuous dimensions, anxiety and avoidance. As Richards and Schat explain, among self-report measures of attachment, "the ECR Scale has demonstrated evidence of internal consistency and test-retest reliability as well as construct and criterion-related validity in the domain of romantic relationships, making it the best measure of adult attachment available" (Richards & Schat, 2011, p. 170).

These researchers employed their adapted scale, the Experience of Relationships Scale (ERS), in two studies. First, they tested its construct validity through correlational analyses with measures of trait affectivity and the Big Five personality dimensions. In framing hypotheses concerning the relationship between attachment and the Big Five, they report having drawn upon empirical results from an earlier study that investigated the Big Five and romantic attachment relationships, in which the anxiety and avoidance dimensions of attachment were also tapped (Noftle & Shaver, 2006). That study found significant negative correlations between conscientiousness and both attachment anxiety and avoidance. However, no relationship between ERS and conscientiousness was either predicted or found by Richards and Schat (2011). Conscientiousness is widely utilized by organizational psychologists as a surrogate measure of performance (Chamorro-Premuzic & Furnham, 2009); it is disappointing that Richards and Schat found no significant relationship between conscientiousness and their adapted attachment measure, and puzzling, given these researchers' explicitly stated interest in industrial-organizational application of attachment theory, that no such relationship was considered.

In their second study, Richards and Schat (2011) generated theory-driven hypotheses regarding relations between the anxiety and avoidance dimensions of attachment that their measure is designed to tap, and various work-related behaviors such as organizational commitment, and turnover intention. Their research on "attachment at (not to) work" successfully applied a dimensional measure of adult attachment to reveal a relationship between attachment orientation and some specified individual work behaviors. However, despite drawing upon study participants' supervisors as a data source, the researchers did not obtain data about participants' job performance, thus precluding examination of the relationship
between attachment orientation at work and job performance. It seems to us that this overlooked focus (on the relationship between attachment and performance, at work) would be of foremost practical interest to those who lead, manage, and otherwise invest in industrial organizations. If attachment researchers are to engage in more than occasional skirmishes into the organizational arena, the relationship between attachment orientation at work and on-the-job performance must be explored.

The theory

“Attachment security” has been defined as the state of being secure or untroubled about the availability of an attachment figure (Ainsworth et al., 1978). The theory’s fundamental premise is that the motivation to achieve proximity is biologically based and arose through the process of natural selection (Cassidy, 1999). A central tenet of the idea of the attachment relationship is that the caregiver serves as a “secure base” from which the infant explores his/her environment (Ainsworth, 1963). The exploratory behavioral system operates in dynamic equilibrium with the fear behavioral system, which in turn triggers the attachment behavioral system (Ainsworth et al., 1978; Bowlby, 1973).

In young children, research has shown that different patterns of attachment behavior reflect differences in the quality of care experienced; specifically, the basic pattern of shifting between exploration and attachment behaviors will appear distorted to the extent that the infant perceives the attachment figure to be inaccessible or inappropriately responsive. Ainsworth’s Strange Situation procedure (Ainsworth et al., 1978) focussed particularly on infants’ responses to separation from and reunion with their primary caregiver, and distinguished between “secure” and “insecure” attachment patterns of behavior. Infants who responded to separation distress by actively seeking and maintaining contact until comforted, which in turn prompted a return to play (exploration), were categorized as “securely attached”. In this early empirical research, two other behavioral patterns were identified, which were understood to be manifestations of two forms of insecure attachment. Some infants avoided the caregiver upon reunion, not acknowledging separation distress, although replication studies revealed heart rate increase in these infants (Sroufe & Waters, 1977). Other infants displayed limited exploration and an inability to be comforted and to settle upon reunion; they appeared ambivalent about their caregivers, mixing contact-seeking behaviors with resistance (Morris, 1982). The first of these two behavioral patterns is considered indicative of a particular type of attachment insecurity referred to in the literature as “avoidant” or (in adults) “dismissive” (of attachment relationships). The second is thought to be reflective of an attachment orientation referred to as “anxious/ambivalent” or “preoccupied” (with attachment relationships).

As interest in adult attachment research grew, many self-report inventories were designed to map onto the three attachment orientations that had been identified with Ainsworth’s Strange Situation procedure. Most of these adult attachment measures were geared for investigation of attachment orientation or style in the context of so-called romantic relationships. The previously mentioned Self-Reliance Scale, although constructed for the work context, likewise consists of items grouped into three factors that the authors present as theoretically consistent with attachment theory (Joplin et al., 1999).
In later applications of Ainsworth’s Strange Situation procedure, a third category of attachment insecurity was identified. Referred to in the literature as “disorganized/disoriented” (Main & Solomon, 1986), behaviors associated with this category tend to be less obvious to the observer. Behaviors exhibited during the Strange Situation procedure that fall into this classification are thought to occur when the infant experiences the caregiver as the source of both comfort and alarm (Main & Hesse, 1990). Whereas infants who manifest either avoidant or anxious/ambivalent patterns of behavior during the Strange Situation procedure are thought to have developed coherent behavioral strategies reflective of their respective caregivers’ responses to them, infants whose behavior is classified as disorganized/disoriented are thought to have experienced such variable, confusing, and/or conflict-laden responses that they are unable to develop a coherent behavioral strategy.

In the adult attachment literature, a comparable four-group conceptual model of attachment emerged, for which substantial empirical support has been found (Bartholomew & Horowitz, 1991; Brennan, Shaver, & Tobey, 1991). This four-group model has been associated with two major underlying attachment dimensions, linked to Bowlby’s conjectured model of self and model of other, and characterized in terms of “anxiety about relationships” and “comfort with closeness” (Feeney, 1995). In their cogent review of the expansive empirical literature on attachment in adulthood, Mikulincer and Shaver (2007) detail the progression, with self-report measures of attachment style, from categorical measures to continuous scales that, in the main, reveal two underlying attachment dimensions, most often characterized in terms of anxiety (about relationships) and avoidance (i.e., discomfort with closeness). Moreover, the authors show how these dimensions tie in with the three infant–mother attachment patterns that Ainsworth et al. (1978) originally identified (see Figure 4.1 in Mikulincer & Shaver, 2007, p. 84).

Measuring Adult Attachment in the work context

Attachment theory posits that attachment occurs across the lifespan; once established, attachment orientation is thought to be self-reinforcing but, importantly, not immutable (Bowlby, 1979). As discussed by Shaver and Mikulincer (2004), Mikulincer and Shaver (2007), and Steele et al. (2009), research on adult attachment has developed along two fairly independent lines. One line, much of which is anchored in the work of George, Kaplan, and Main (1985), investigates developmental and clinical concerns, such as aspects of cross-generational transmission of attachment orientation (e.g., Fonagy, Steele, & Steele, 1991); the other, spearheaded by Hazan and Shaver (1987), examines correlates of attachment style and tends to be the purview of personality and social psychologists. A meta-analytic investigation of the relationship between these two lines of research (Roisman, et al., 2007) points to their empirical divergence. As Roisman (2009) discusses in a recent review, there is, nonetheless, strong conceptual convergence across these two approaches. Roisman (2009) makes a compelling case both for precision in selection of methods most pertinent to particular research aims, and for increased collaboration across the two psychological traditions that underlie these two approaches to measuring adult attachment.

For our research on attachment at work, we wanted to use an adult attachment measure that was relatively short, to enhance the likelihood that organizational decision makers would approve use of it and that employees would find time to
complete it. We wanted a measure tailored for the work environment (as Brennan et al.’s [1998] ECR Scale is tailored for assessment of romantic attachment). We opted to adapt the Adult Attachment Scale (AAS), a self-report measure of romantic attachment developed by Collins and Read (1990), which, with only 18 items, is half the length of the ECR Scale, and had previously been used, in conjunction with the Adult Attachment Interview (AAI; George et al., 1985), in an all too rare investigation of attachment utilizing measures from both the “individual differences” and the developmental traditions (Shaver, Belsky, & Brennan, 2000). The AAS is among the continuous measures detailed in the review of adult attachment measures noted above (Mikulincer & Shaver, 2007).

Adaptation of the AAS (Collins & Read, 1990) in some instances simply entailed adding the phrase “at work” to the original item; in other instances, where content was particular to the romantic context, items were paraphrased to be suitable for the work context (see Table 1). One aim of our research was to validate our adapted, self-report measure of adults’ attachment orientations in the workplace, Adult Attachment at Work (AAW). The present study thus falls squarely within the line of adult attachment research that tends to be carried out by personality and social psychologists. Conceptually, however, we retain an interest in spanning the two lines of adult attachment research.

Overall, our research entailed using the AAW to investigate attachment at work as a construct, while simultaneously validating this new measure against extant measures of attachment in the social and personality psychology tradition, well-established measures of personality, and a range of other validated measures of variables of interest to organizational researchers and practitioners (e.g., self-esteem; trait emotional intelligence). In each of several studies, we perforce made choices that were a balance of our research interests and the perceived needs of the particular organization hosting that study. In one study from this series, for example, we explored the relationships between the Big Five personality traits, self-esteem, and attachment orientation at work, using our AAW measure and the full 240-item version of the Big Five personality measure (NEO-PI-R; Costa & McCrae, 1992), and drawing on a sample of 248 adults (165 female and 83 male), all employed by the same multi-national firm in the publications industry, and working either in the UK or the US (Neustadt, Chamorro-Premuzic, & Furnham, 2006). For the present study, we were able to extend our investigation to include examination of the relationship between attachment at work and job performance.

To date, using the AAW, we have consistently found a two-factor solution (Neustadt et al., 2006). We labelled these two factors SAAW (Secure/Autonomous Attachment at Work) and IAW (Insecure Attachment at Work). As noted above, there is increasing consensus among attachment researchers about the existence of two underlying dimensions of attachment (Mikulincer & Shaver, 2007; Noftle & Shaver, 2006). Anxiety (a.k.a. being preoccupied with attachment) and avoidance (dismissing of attachment) are the two most prevalent insecure attachment strategies identified in the mainstream attachment literature, and many attachment measures have been found, or indeed developed, to tap into two orthogonal dimensions characterized as assessing, respectively, “attachment-related anxiety” and “attachment-related avoidance” (Brennan et al., 1998). However, in our research we did not find a straightforward alignment between these two dimensions and our two AAW factors. Therefore, as a means of further testing the validity of our new measure, in the current study we supplemented our original 18-item AAW inventory with 12
additional items drawn from the attachment literature specifically because they had elsewhere been found to differentiate between the two types of insecure attachment associated with these two dimensions (Hazan & Shaver, 1990; Sroufe, 2005).

Hypotheses

Hypothesis 1: Principal component analysis of the Adult Attachment at Work (AAW) inventory will identify two distinct factors, as in our prior studies. H1: Examination of the items loading onto each factor will reveal that these factors are consistent with findings in our prior attachment at work studies, corresponding, respectively, with “secure/autonomous” and insecure attachment at work, perhaps.

Table 1. Rotated component matrix and factor loadings following PCA of the AAW inventory.

<table>
<thead>
<tr>
<th>Item</th>
<th>SAAW</th>
<th>IAW</th>
</tr>
</thead>
<tbody>
<tr>
<td>15) I can count on work colleagues to support me when I need them</td>
<td>.79</td>
<td>- .41</td>
</tr>
<tr>
<td>1) I find it relatively easy to get close to others at work</td>
<td>.69</td>
<td></td>
</tr>
<tr>
<td>3) I find it difficult to allow myself to depend upon others at work (R)</td>
<td>.68</td>
<td></td>
</tr>
<tr>
<td>7) I am comfortable depending upon others at work</td>
<td>.66</td>
<td></td>
</tr>
<tr>
<td>9) I am somewhat uncomfortable depending upon others at work (R)</td>
<td>.65</td>
<td></td>
</tr>
<tr>
<td>27) I am not good at first encounters (R)^N</td>
<td>.59</td>
<td></td>
</tr>
<tr>
<td>2) I do not often worry about being left in the lurch at work</td>
<td>.53</td>
<td></td>
</tr>
<tr>
<td>29) I do not get easily frustrated at work^N</td>
<td>.50</td>
<td></td>
</tr>
<tr>
<td>21) I regularly seek advice from my colleagues^N</td>
<td>.50</td>
<td></td>
</tr>
<tr>
<td>14) I am comfortable having others depend on me at work</td>
<td>.43</td>
<td></td>
</tr>
<tr>
<td>8) I do not often worry about someone confiding too much at work</td>
<td>.34</td>
<td></td>
</tr>
<tr>
<td>24) My work efforts are misunderstood^N</td>
<td>.79</td>
<td></td>
</tr>
<tr>
<td>18) I often feel that I’m on my own in this company</td>
<td>.74</td>
<td></td>
</tr>
<tr>
<td>5) I often worry that work colleagues do not really trust me</td>
<td>.73</td>
<td></td>
</tr>
<tr>
<td>4) Top management is never there when you need it</td>
<td>.69</td>
<td></td>
</tr>
<tr>
<td>16) I find it difficult, in the workplace, to trust others completely</td>
<td>.65</td>
<td></td>
</tr>
<tr>
<td>20) Often, work colleagues want me to be more open than I feel comfortable being</td>
<td>-.34</td>
<td>.63</td>
</tr>
<tr>
<td>6) I find work colleagues reluctant to be as open as I would like</td>
<td>-.32</td>
<td>.61</td>
</tr>
<tr>
<td>11) I often worry that people will not want to stay on my work team</td>
<td>.57</td>
<td></td>
</tr>
<tr>
<td>23) I have difficulty finishing projects and meeting deadlines^N</td>
<td>.55</td>
<td></td>
</tr>
<tr>
<td>13) Work colleagues are sometimes put off by my desire to be on their wavelength</td>
<td>.53</td>
<td></td>
</tr>
<tr>
<td>25) Work interferes with relationships^N</td>
<td>.53</td>
<td></td>
</tr>
<tr>
<td>10) I get nervous when anyone at work confides too much</td>
<td>.45</td>
<td></td>
</tr>
<tr>
<td>Eigenvalue for each factor</td>
<td>2.93</td>
<td>4.95</td>
</tr>
<tr>
<td>Cronbach’s a</td>
<td>.70</td>
<td>.75</td>
</tr>
<tr>
<td>Variance accounted for by each factor:</td>
<td>22.8%</td>
<td>28.7%</td>
</tr>
</tbody>
</table>

Notes: N = 211, Extraction Method: Principal Component Analysis. Rotation Method: Oblimin with Kaiser Normalization. ^N = new item; numbers to the left of the items correspond to the original item number in the questionnaire; (R) = reversed item; cross-loadings > .30 are reported; all loadings < .30 have been omitted for presentation clarity. AAW = Adult attachment at work; IAW = Insecure attachment at work; SAAW = Secure/autonomous attachment at work. One item did not show high enough loadings to be included: 2) I do not often worry about being left in the lurch at work.
the latter being particularly aligned with one of the two main types of “insecure” styles of attachment at work (anxious or avoidant).

**Hypothesis 2**: One purpose of the current study was to replicate associations between attachment and personality originally found in research on romantic attachment (e.g., Noftle & Shaver, 2006; Shaver & Brennan, 1992), and in our prior attachment at work research (e.g., Neustadt et al., 2006). Specifically, because attachment security is associated with emotional stability, hypotheses are as follows.

H2a: Neuroticism will be significantly negatively correlated with secure/autonomous attachment style at work. H2b: Insecure avoidance is thought to be associated with the deactivation of behaviors that would entail interaction with others, so it is predicted that Extraversion will be significantly positively correlated with secure/autonomous attachment style at work. H2c: Insecure anxiety is thought to be associated with reduced trust in others, so it is predicted that Agreeableness also will be significantly positively correlated with secure/autonomous attachment at work.

**Hypothesis 3**: According to attachment theory, attachment security promotes confident exploration and mastery of the environment. Conscientiousness has elsewhere been linked to performance at work and achievement striving (Chamorro-Premuzic & Furnham, 2005). Notably, although Shaver and Brennan (1992) reported at most a small association between attachment styles and conscientiousness (p. 543), in a more recent investigation of the relationship between attachment dimensions and what are currently the most complete and frequently used measures of the Big Five, Noftle and Shaver (2006) reported finding significant negative correlations between conscientiousness and both attachment anxiety and avoidance. Findings of our previous attachment at work studies indicate that, in the workplace, attachment and conscientiousness are significantly intercorrelated, such that SAAW predicts higher conscientiousness than does IAW (Neustadt et al., 2006). Conscientiousness is widely recognized by business psychologists as a performance indicator (Chamorro-Premuzic & Furnham, 2009; Schmidt & Hunter, 1998); therefore, this study further explores the relationship between attachment at work and conscientiousness, to assess whether and how these two interact to predict performance.

From a practical point of view, it is important to determine whether, and to what extent, attachment at work makes a distinct contribution to the prediction of performance, versus, for example, simply overlapping with conscientiousness. H3a: Conscientiousness will be significantly and positively related to secure/autonomous attachment at work. H3b: Job performance will be significantly and positively related to secure/autonomous attachment at work. H3c: Attachment will make an additional contribution to the prediction of performance, beyond that of conscientiousness.

**Hypothesis 4**: Bartholomew (1990) considered attachment dimensions in relation to positive vs. negative conceptualization of self and of others. She identified four rather than three attachment patterns: secure (positive self, positive other); preoccupied (negative self, positive other); dismissing avoidant (positive self, negative other); fearful avoidant (negative self, negative other). Bartholomew theorized that most people possess congruent (i.e., both positive or both negative) internal working models of self and others (see also Mikulincer & Shaver, 2007). The current study investigates attachment at work with a relatively homogenous set of managers, all employed within one work organization. In a prior study that also involved participants drawn from another single organization, as predicted, a significant relationship was found between attachment orientation at work and self-esteem (Neustadt et al., 2006). In the current study, we sought to replicate this
finding in a different organizational context. H4: Self-esteem will be significantly and positively related to secure/autonomous attachment at work.

**Hypothesis 5:** Attachment may be viewed as theoretically related to trait emotional intelligence, such that a sustained sense of attachment security promotes undistorted “reading” of and reaction to emotions, for example, as these are conveyed by facial expressions and behaviors, and attachment insecurities contribute to distortion or denial of emotional experience (Mikulincer & Shaver, 2007). Trait-EQ has been found to be both theoretically and empirically related to work performance (Chamorro-Premuzic & Furnham, 2009). H5: Attachment at work will have some effects on assessed performance that are distinguishable from those of trait-emotional intelligence, providing evidence that, although related, these are two distinct constructs, each of which contributes to effective job performance.

Although the relationship between attachment at work and openness to experience, another of the Big Five personality traits, has appeared variable in our series of studies, this personality trait remains of interest in mainstream organizational psychology research; no hypotheses are offered but statistical associations will be examined.

Finally, demographic variables will also be examined with regard to AAW factors. Although no specific hypotheses are stated about these, it will be of interest to see whether the relationship between personality traits and demographic variables conform to findings in other adult attachment research.

**Method**

**Participants and procedure**
Participants were 211 (52% male; 96% White/Caucasian) employees working in the UK and Ireland for a well-known international business in the hospitality industry. Age ranged from 25 to 60 (M = 40.1, SD = 7.3) years. Fifty one percent were married, 23% single, 17% living with a partner, 6% divorced, and 1% widowed (2% unreported). Forty three percent of the sample had completed up to BSc/BA or equivalent; 21% were educated up to A-level, 15% to GCSE/O-level, 9% held a Master’s degree (MA/MSc/MBA or equivalent), and 10% had other technical or professional accreditation (2% unreported).

Questionnaires were distributed to 400 managerial employees via email, as an attachment to a message from the new international Vice President of Human Resources, inviting their participation in a “leadership diagnostic” survey. Completed questionnaires were returned directly to University College London; individual respondents’ anonymity was assured. Response rate was high, at over 50%. A centralized record of employee performance data was separately made available for this research; it proved to include data on 170 (52% male) participants who had completed the questionnaires. This sub-sample was virtually identical in demographic variables to the full sample. No significant demographic correlates of attachment were found in either the full or the sub-sample.

**Measures**

**Adult Attachment in the Workplace (AAW)**
Attachment at work was assessed using a purpose-designed scale consisting of the original 18 items used in previous studies (see Neustadt et al., 2006), plus an
additional 12 items drawn from the extant attachment literature and thought to differentiate between different types of insecure attachment (Hazan & Shaver, 1990; Sroufe, 2005). These new items were adapted as necessary for application in the context of work, and were tested, as reported herein, in regards to the underlying structure of the scale.

**Personality**

Personality was assessed utilizing the NEO FF-I (Costa & McCrae, 1992). This inventory represents the short version of the well-established NEO-PI-R and assesses the Big Five personality domains: neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. Items consist of questions about typical behaviors or reactions, which are answered on a five-point Likert scale. Responses range from “strongly disagree” to “strongly agree”. Over the past decade, a substantial and growing amount of empirical literature has provided evidence for the validity and reliability of this inventory (e.g., Chamorro-Premuzic, 2007; Costa & McCrae, 1992).

**Self-esteem**

A self-report inventory was adapted from Rosenberg’s (1965) *Self-esteem Scale*, and comprises 10 statements such as “All in all, I am inclined to feel that I am a failure” (reversed), to which participants responded on a seven-point scale (“disagree” to “agree”). Further details about this scale appear in Robinson et al. (1991). The reliability of the scale in the present sample was $\alpha = .82$.

**Emotional self-efficacy, aka trait-emotional intelligence**

Trait emotional intelligence (TEIQ) was assessed via the mini-TEIQ scale, which is based on the 30-item version of TEIQ (Petrides & Furnham, 2003). The scale comprises eight-items (4 reversed) that assess participants’ emotional self-efficacy or the extent to which they believe they can successfully identify and manage their own emotions as well as those of others. Participants respond on a seven-point scale.

**Career potential**

Extant assessments of participants’ career potential, produced by the organization’s own assessment centres, were made available for use in this research. Career potential was assessed on a three-point scale corresponding to relatively high potential, intermediate potential, and lower potential.

**Job performance**

Measures of job performance were also provided by the organization; these were managerial ratings that had been determined as part of normal business practice, so also independent of this study. Job performance was assessed on a six-point scale that consolidated achievement ratings against objectives set in the context of business scorecards. Where job performance measures had been obtained at two points in time ($N = 127$), these ratings were combined to increase reliability ($\alpha = .68$).
Results

Data reduction: Structure of AAW

Initial data reduction was performed via principal component analyses (PCA) to explore the underlying structure of the AAW inventory. Despite inclusion of an additional 12 items to the original AAW questionnaire, based on the results of the Scree test and eigenvalues larger than 1.3, no more than two oblique factors were extracted and rotated via the oblimin method with Kaiser normalization. Seventeen of the original 18 items showed high enough loadings to be included, and six of the new items also loaded onto the principal two factors. As in the original AAW inventory, factor 1 was once again labelled “insecure attachment at work” (IAW); this factor had an eigenvalue of 4.95 and accounted for 28.7% of the variance. Again, in line with the original version of the inventory, factor 2 was labelled “secure/autonomous attachment at work” (SAAW); this factor had an eigenvalue of 2.93 and accounted for 22.8% of the variance. Thus the combined solution explained 51.5% of the variance. Items and loadings are reported in Table 1. Both factors had good internal consistencies (see Table 2) and were used for the remaining analyses to explore associations between attachment at work styles and other target variables.

Correlational analyses

Descriptive statistics (M and SD), internal consistencies (Cronbach’s $\alpha$), and intercorrelations (Pearson’s $r$) for all main measures are presented in Table 2.

As seen, correlates of attachment were consistent with initial predictions. Thus SAAW and IAW were negatively correlated. SAAW correlated positively with self-esteem, TEIQ, Extraversion, Agreeableness, and Conscientiousness, and negatively with Neuroticism. No significant correlations were found between attachment factors and Openness to Experience (which in this study was the only Big Five factor with relatively poor internal consistency, i.e., $\alpha = .65$, and about which no predictions had been made). Also, as expected, IAW correlated significantly with the same traits as did SAAW, but in the reverse direction. Thus IAW was positively linked to Neuroticism, and negatively to self-esteem, TEIQ, Extraversion, Agreeableness, and Conscientiousness.

Below the correlational diagonal, Table 2 reports the correlations between the two attachment factors and some of the same constructs found in Neustadt et al. (2006). A quick comparison between past and present associations suggests that the modified, currently employed measure of attachment exhibits superior construct validity in regards to established traits. As shown, and as one would expect, secure/autonomous attachment at work is related to adaptive traits whereas the opposite is true for insecure attachment at work.

The correlation between AAW and TEIQ in the present study was substantial. In fact, AAW and TEIQ were largely interchangeable in terms of their correlations with personality traits and self-esteem.

Job performance and incremental validity

Table 3 reports the results of the hierarchical regression analyses predicting job performance, including the bivariate Pearson correlation coefficients ($r$) between job
Table 2. Inter-correlations among primary variables.

<table>
<thead>
<tr>
<th>Variable</th>
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Notes: Values below the diagonal represent the Pearson's bivariate correlation coefficients from Neustadt, Chamorro-Premuzic, and Furnham (2006) based on N = 248 and similar measures of the same constructs. For the present study (above the diagonal) N = 211; Se = Self esteem; TEIQ = Trait emotional intelligence; N = Neuroticism, E = Extraversion, O = Openness to Experience, A = Agreeableness, C = Conscientiousness.

*p < .05; **p < .01. SAAW = Secure/autonomous attachment at work; IAW = Insecure attachment at work.
performance and individual predictors. This combined both hierarchical and multiple entries in order to test whether attachment factors had incremental validity over and above ratings of participants’ career potential (entered as the single predictor in step 1), the four significant Big Five correlates of job performance (i.e., Neuroticism, Extraversion, Openness, and Conscientiousness), self-esteem, and TEIQ (all entered as stepwise predictors in step 2), and the two attachment factors in the final step. Not shown in Table 3 are self-esteem, Openness, Neuroticism, Agreeableness, and Extraversion, which were excluded from the hierarchical analysis because they contributed insufficient additional variance. The hierarchical regression also separated Conscientiousness and TEIQ into two different steps, as both variables accounted for unique variance in job performance.

Overall, the results showed that ratings of career potential significantly accounted for 9% of the variance in job performance (step 1), that Conscientiousness explained an additional 12% of the variance in job performance (step 2), whilst TEIQ increased the overall percentage of variance accounted for by an additional 3% (step 3). The incremental validity of attachment factors was supported in step 4, where the overall variance increased by an additional 3%, for a total of 27%. Furthermore, TEIQ was no longer a significant predictor of job performance, showing that, once attachment is taken into account, TEIQ no longer explains variance in job performance. Note that SAAW, but not IAW, was a significant predictor in the model. In order to test whether SAAW accounted for the effects of TEIQ on job performance, mediation analysis was carried out (in line with Baron & Kenny, 1986). Results showed that SAAW partly mediated the effects of TEIQ on job performance (direct st. $\beta = .34$, indirect st. $\beta = .21$, Sobel’s $Z = 6.03$, $p < .01$). Mediation was also used to test whether TEIQ accounted for the effects of SAAW on job performance, and a partial mediation was also found (direct st. $\beta = .37$, indirect st. $\beta = .25$, Sobel’s $Z = 10.03$, $p < .01$).

In line with recent guidelines for incremental validity testing (Hunsley & Meyer, 2003), the shared over simple effects (SOS) were calculated to estimate the unique contribution of secure/autonomous attachment at work in the prediction of job performance. Career potential, Conscientiousness, and TEIQ together explained 24% of the variance, and SAAW on its own explained 14%. The combined variance explained by potential, Conscientiousness, TEIQ, and SAAW together was 27%; the unique contribution of SAAW was 3%, and the shared effect was 11% (14 minus 3). Thus, the SOS computation indicates that 79% (11/14 X 100) of the variance in job performance predicted by SAAW is shared with Conscientiousness, career potential, and TEIQ. Although an SOS value of 79% may seem large, it should be noted that the contribution of SAAW is judged against a combination of several instruments. Thus a more accurate comparative indicator would derive from obtaining the SOS value between Conscientiousness (the most established trait predictor of job performance) and SAAW. The combined variance between this trait and SAAW as predictors of job performance was 29%, with individual $R^2$ values of 22% and 14% for Conscientiousness and SAAW, respectively. This indicates that the unique effect of SAAW is 7%, while the shared effect is 15% (22 minus 7). Accordingly, the SOS effect computation indicates that 32% (7/22 X 100) of the variance in job performance predicted by secure/autonomous attachment at work is shared with Conscientiousness, implying that most of the variance accounted for by secure/autonomous attachment at work is independent of Conscientiousness.
Table 3. Incremental validity: summary of regression analyses predicting job performance.

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<th>( R^2 )</th>
<th>df</th>
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Notes: \( N = 172 \); C = Conscientiousness; TEIQ = Trait emotional intelligence; Potential = Career potential; SAAW = Secure/autonomous attachment at work; IAW = Insecure attachment at work. In all steps criterion variable was job performance.

*\( p < .05 \); **\( p < .01 \); all \( \beta \) values are standardized; \( r \) = bivariate Pearson correlation coefficient.
Discussion

Collins and Read (1990) conducted a factor analysis of their romantic attachment scale (AAS), from which our attachment at work scale (AAW) was drawn, and found three factors. In our previous attachment at work studies, analysis of the AAW items has consistently revealed two factors, which we labelled secure/autonomous attachment at work (SAAW) and insecure attachment at work (IAW) (e.g., Neustadt et al., 2006). For this study, our new measure of attachment orientation at work included additional items selected specifically for their ability to differentiate between two styles of insecure attachment (anxious and avoidant). Nonetheless, factor analysis again identified two factors overall, which we again labelled SAAW and IAW.

One interpretation is that these two factors are linked, respectively, to the two underlying dimensions of avoidance and anxiety; this would be in keeping with subsequent reinterpretation of Collins and Read’s (1990) scales and with the preponderance of recent personality and social psychological research on adult attachment (Mikulincer & Shaver, 2007). Another interpretation is that the two orthogonal dimensions underpinning our measure may be conceptualized as the cross-cutting dimensions of “secure-fearful” and “avoidant/dismissing-anxious/preoccupied” rather than the more frequently reported dimensions associated, respectively, with anxious and avoidant attachment strategies. Shaver and Mikulincer (2004) cite other studies in which the more usually identified dimensions, or axes, have in effect been rotated by 45 degrees; moreover, as these authors note (Shaver & Mikulincer, 2004, p. 45), these alternate dimensions are aligned with a two-dimensional scoring system developed for the AAI (Kobak, 1993). Either of these interpretations would be in keeping with the increasingly prevalent view, among attachment researchers in both the developmental and the personality and social psychology traditions, that there are two underlying dimensions of attachment (Mikulincer & Shaver, 2007; Roisman, 2009).

The correlation between our two attachment scales ($r = -.48$, $p < .01$) was disappointingly high. As a result, they correlated similarly, but in opposite directions, with the other variables in this study, suggesting that the two scales may be somewhat redundant. The fact that SAAW, but not IAW, was a significant predictor of job performance (see Table 3) could be regarded as evidence in support of this view; however, these are findings from just one study.

Although a shorter measure of the Big Five personality traits was used in this study than in Neustadt et al. (2006), all predicted relationships between these traits and AAW were found; in particular, conscientiousness was once again found to be significantly related to AAW. In the management literature, conscientiousness has regularly been linked to performance (Chamorro-Premuzic & Furnham, 2009), and our previous attachment at work studies relied upon conscientiousness as a surrogate for a performance measure, to argue for the practical contribution of secure/autonomous attachment at work. In the present study, the relation between attachment at work and performance has been investigated more directly, using the organization’s own measures of career potential and job performance, with significant results. These findings are limited to one managerial sample from one corporate environment. Within this sample, however, we have clearly demonstrated a positive, statistically significant relationship between SAAW and performance at work.
Both trait EI and SAAW had unique and shared effects on job performance. Indeed, as shown by the mediational analyses, trait EI accounted for some of the effects of secure attachment on career performance, and secure attachment accounted for some of the effects of trait EI on that same outcome. These results are in line with the theoretical overlap between trait EI and attachment (Mikulincer & Shaver, 2007), and also indicate that SAAW has incremental validity in the prediction of work performance, over and above trait EI. Further research is needed to determine how, precisely, what is measured by the AAW scales affects job performance, through trait EI and other as yet unidentified paths.

In this study, trait emotional intelligence correlated surprisingly highly with extraversion, so much as to invite speculation about the extent to which the measures used fit their respective constructs’ definitions. In response to practical constraints of the organization that hosted this study, we deployed the NEO-FFI (Costa & McCrae, 1992), the relatively shorter form of the Big Five personality inventory, and also used an eight-item “mini-TEIQ” version of the trait emotional intelligence measure (Petrides & Furnham, 2003). We suspect that the brevity of these measures (particularly the very short TEIQ measure) led to insufficient differentiation between the two constructs we were endeavouring to tap through them.

Although the correlational nature of our study design does not enable us to assert causality, the current results show that SAAW makes a unique contribution to the prediction of performance, distinct from that made by conscientiousness, the trait predictor of performance most widely recognized by business psychologists. If, as attachment theory suggests, attachment orientation (including among adults, and at work) is mutable, it may prove useful to focus on this attribute not only as a source of information that contributes to predicting performance, but also as a focal area for management development that may enhance performance at work. In other words, findings of this study have potential practical significance not simply (or simplistically) in terms of using attachment orientation at work as a selection criterion but, importantly, in terms of using the theory to inform management training and leadership development. We hope that the results of this study will garner sufficient interest among attachment researchers and organizational practitioners, alike, to generate further investigations into the function of attachment at work.

Notes
1. Further information about this new measure may be obtained from this paper’s first author.
2. Subsequently, other researchers have suggested that two of these reflect two aspects of the underlying dimension of attachment avoidance, specifically, discomfort with closeness and with dependency (Mikulincer & Shaver, 2007). We were not aware of this when, given the novelty of our measure, we decided to continue to test structure and construct validity of the AAW throughout our series of studies.
3. As a more robust means of assessing the AAW inventory, CFA was applied to the overall data set from our series of studies. The correlation between the shorter forms of the SAAW and IAW was $r = -.19, p < .01$. This correlation accounts for error of measurement and is based on $N = 904$. This result supports our view of SAAW and IAW as two distinct factors, rather than two opposite extremes of the same underlying dimension (a correlation of $r = -.19$ suggests an overlap of less than 4% of the variance between SAAW and IAW). The Cronbach $\alpha$’s for SAAW and IAW were .71 and .77, respectively. There was no significant correlation between gender and either SAAW ($r = -.05, p > .05$) or IAW ($r = .01, p > .05$), and age was significantly correlated with SAAW ($r = .17, p < .01$), but not with IAW ($r = .01, p > .05$). Thus, in an overall
sample that was 53% female and 47% male, with mean age 44, SD = 11, older people tended to be more secure, at least in terms of their attachment orientation at work.

4. Several studies on attachment and leader–follower relationships point to secure attachment as a factor in leadership selection, in leadership effectiveness, and in positive outcomes for followers (Mayseless, 2010). That said, as Ein-Dor et al. (2010) remind us, insecure attachment strategies may also have adaptive advantages for group performance.

References
Ein-Dor, T., Mikulincer, M., Doron, G., & Shaver, P.R. (2010). The attachment paradox: How can so many of us (the insecure ones) have no adaptive advantages? Perspectives on Psychological Science, 5, 123–141.


