

VALIDATION STUDY OF THE WORKPLACE RELATIONSHIPS INVENTORY:  
A WORKPLACE SELF-REPORT MEASURE OF  
ADULT ATTACHMENT STYLE

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VALIDATION STUDY OF THE WORKPLACE RELATIONSHIPS INVENTORY:  
A WORKPLACE SELF-REPORT MEASURE OF  
ADULT ATTACHMENT STYLE

by

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Self-report measures of adult attachment style predict organizational behaviors. Traditionally, self-report instruments used in organizational settings measure adult attachment style in regard to romantic relationship targets. This study reports the psychometric validation of a measure for assessing adult attachment style in regard to close working relationships. The Workplace Relationships Inventory was modeled on the Experiences in Close Relationships scale and designed to be utilized in workplace environments. It was hypothesized that the Workplace Relationships Inventory has a two-dimensional structure like the Experiences in Close Relationships scale comprised of

attachment-related anxiety and avoidance. From 2008-2010, over 500 students in organizational behavior classes were administered the Workplace Relationships Inventory along with existing measures of adult attachment style. Factor analysis of the Workplace Relationship Inventory items did not support the proposed two-factor solution. Statistically, four factors provided the best fit for the data. Conceptually, there is much to recommend two major factors coinciding with the proposed anxiety and avoidance dimensions of the scale. The Workplace Relationships Inventory demonstrated good internal consistency reliability, and convergent and divergent validity with comparative self-report measures of adult attachment style. Revisions to the Workplace Relationships Inventory are proposed.

## TABLE OF CONTENTS

<b>CHAPTER ONE</b> .....	15
Overview .....	15
Infant Attachment Theory .....	18
Adult Attachment Theory .....	25
<b>CHAPTER TWO</b> .....	32
Assessments of Individual Differences in Attachment from Infancy to Adulthood .	32
Strange Situation .....	36
Adult Attachment Interview .....	39
Self-report Measures of Attachment .....	46
The Attachment Style Measure .....	47
Adult Attachment Questionnaire .....	50
Adult Attachment Scale .....	50
Attachment Style Questionnaire .....	51
Relationship Questionnaire .....	52
Experiences in Close Relationships .....	54
Relationship Structures Questionnaire .....	56
Interview versus Self-Report Measures .....	57
Attachment in the Workplace .....	59
Individual Differences in Attachment Patterns .....	60
Group Differences .....	62
Attachment Style and Leadership .....	63
Purpose of the Present Study .....	66

Hypotheses .....	67
Hypothesis One .....	67
Hypothesis Two .....	67
Hypothesis Three .....	68
Hypothesis Four .....	68
<b>CHAPTER THREE .....</b>	<b>69</b>
Participants .....	69
Procedure .....	69
Instruments .....	70
<b>CHAPTER FOUR .....</b>	<b>73</b>
Characteristics of the Sample .....	73
Analyses of the Hypotheses .....	74
Hypothesis One .....	75
Hypothesis Two .....	78
Hypothesis Three .....	79
Hypothesis Four .....	81
<b>CHAPTER FIVE .....</b>	<b>82</b>
The Factor Structure of the WRI .....	83
Item-Level Conclusions .....	86
WRI Acceptability .....	91
Distribution of WRI Factor Scores .....	92
Limitations .....	93
General Conclusions .....	94



<b>FIGURES</b> .....	96
<b>TABLES</b> .....	102
<b>APPENDIX</b> .....	117
<b>REFERENCES</b> .....	121

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## LIST OF FIGURES

FIGURE 1:	Two-dimensional attachment space .....	96
FIGURE 2:	Two-dimensional attachment space conceptualized as Model of Self and Other .....	97
FIGURE 3:	Scree Plot of the WRI .....	98
FIGURE 4:	Bivariate Scatterplot of WRI Sample.....	99
FIGURE 5:	Distribution of Anxiety Factor Scores .....	100
FIGURE 6:	Distribution of Avoidance Factor Scores.....	101

### LIST OF TABLES

TABLE 1:	Demographic Characteristics of the Sample .....	102
TABLE 2:	Employment Characteristics of the Sample .....	103
TABLE 3:	Factor Loadings from a Two-Factor Solution.....	104
TABLE 4:	Factor Loadings from a Four-Factor Solution .....	105
TABLE 5:	Inter-Factor Correlations of Four-Factor Solution.....	106
TABLE 6:	Means, Standard Deviations, & Reliability Coefficients of the Survey Scales .....	107
TABLE 7:	WRI Item Means & Standard Deviations .....	108
TABLE 8:	WRI Item-Total Correlations .....	109
TABLE 9:	Attachment Survey Scale Correlations .....	110
TABLE 10:	Analysis of Variance among Ethnicities and Rating of Acceptability as Measured by Ease of Using WRI.....	111
TABLE 11:	Analysis of Variance among Ethnicities and Rating of Acceptability as Measured by Comfort with Filling out the WRI at Work .....	112
TABLE 12:	Tukey HSD Comparison for Ethnicity and Rating of Acceptability as Measured by Ease of Using WRI.....	113
TABLE 13:	Tukey HSD Comparison for Ethnicity and Rating of Acceptability as Measured by Comfort with Filling out the WRI at Work .....	114
TABLE 14:	Analysis of Variance between Gender and Rating of Acceptability as Measured by Ease of Using WRI.....	115
TABLE 15:	Analysis of Variance between Gender and Rating of Acceptability as Measured by Comfort with Filling out the WRI at Work .....	116

## LIST OF ABBREVIATIONS &amp; DEFINITIONS

AAI	Adult Attachment Interview
AAQ	Adult Attachment Questionnaire
AAS	Adult Attachment Scale
ASM	Attachment Style Measure
ASQ	Attachment Style Questionnaire
ECR	Experiences in Close Relationships Scale
RQ	Relationship Questionnaire
RS	Relationship Structures Questionnaire
WRI	Workplace Relationships Inventory

*Definitions*

Attachment - An enduring affectional bond between two persons

Attachment behavior - Any form of behavior (e.g., clinging or crying) intended to attain or retain proximity to a preferred individual

Attachment behavioral system – the organization of attachment behaviors within the individual having proximity to an attachment figure as its goal

Attachment figure – a preferred individual who provides a sense of security and with whom an affectional bond is formed

Attachment style – a characteristic pattern of relating to others that is based on the quality of one's infant relationship with a primary attachment figure

Cybernetics – The theoretical study of communication, feedback, and control processes in biological, mechanical and electronic systems, especially the comparison of these processes in biological and artificial systems

Ethology – the biological study of animal behavior

Internal working model – mental representation of the self in relation to others that enable a person to predict and prepare for future interactions with important people

Safe haven – the role filled by an attachment figure in providing safety and security to one who is attached

Secure base – the role of an attachment figure in providing security

## **CHAPTER ONE**

### **Introduction**

#### **OVERVIEW & RATIONALE**

“Attachment” traditionally refers to a child’s tie to its mother (Bowlby, 1969/1982). In early theorizing, Sigmund Freud reasoned that attachments form out of an infant satisfying its need for nourishment at the breast (Freud, 1940). Later, John Bowlby advanced a new hypothesis that the attachment between a child and mother is the product of a biologically evolved behavioral system that has as its goal proximity to the mother (Bowlby, 1969/1982). In fleshing out his theory on the nature of attachment, Bowlby (1969/1982, 1973, 1980) focused on the primacy of the infant’s attachment to its mother and the enduring effect that this first relationship has on personality development throughout the lifespan. Mary Ainsworth and her research team, in early collaborations with Bowlby, were the first to empirically test Bowlby’s assumptions, identifying three main, face valid patterns of infant attachment to the mother: *Secure*, *anxious* and *avoidant* (Ainsworth, Blehar, Waters & Wall, 1978). Two rather divergent lines of inquiry into the course that early attachment takes throughout the lifespan have grown out of Ainsworth et al.’s (1978) pioneering work. One line has been towed by developmental psychologists who have used interview methods to study adults’ representational processes with respect to attachment, and the other towed by social and personality psychologists who have favored self-report measures

to assess attachment in terms of adult experiences in romantic relationships (Shaver & Mikulincer, 2002). Both lines of research have focused on individual differences in adult attachment patterns and the behavioral, psychological, emotional and cognitive correlates (Crowell, Fraley, & Shaver, 1999).

During the past two decades, social and personality psychologists have developed various self-report measures for assessing adult attachment patterns in different types of close relationships with parents, romantic partners, friends, and therapists (Mikulincer & Shaver, 2007). Hazan and Shaver (1987) were the first to develop a self-report measure of adult romantic attachment, and they based the wording of their self-report items on Ainsworth et al.'s (1978) original descriptions of infant attachment styles as summarized in their book. The following assessment items were used by Hazan and Shaver (1987) in asking subjects to indicate which one best described their feelings:

*Secure:* I find it relatively easy to get close to others and am comfortable depending on them and having them depend on me. I don't often worry about being abandoned or about someone getting too close to me.

*Avoidant:* I am somewhat uncomfortable being close to others; I find it difficult to trust them completely, difficult to allow myself to depend on them. I am nervous when anyone gets too close, and often, love partners want me to be more intimate than I feel comfortable being.



*Anxious*: I find that others are reluctant to get as close as I would like. I often worry that my partner doesn't really love me or won't want to stay with me. I want to merge completely with another person, and this desire sometimes scares people away. (p. 515)

In 1990, Hazan and Shaver extended the study of attachment into the workplace, conceptualizing romantic love as an attachment process and demonstrating a link between people's attachment patterns in romantic relationships and workplace attitudes and experiences. Since that time, researchers have broadened the scope of attachment research in contexts such as the military and police force, and have studied attachment processes in relation to groups and leaders (Davidovitz, Mikulincer, Izsak, Shaver, & Pooper, 2007; Popper, Mayseless, & Castelnovo, 2000). Most of the studies of attachment in organizations compare the data from self-report measures of romantic attachment to outcomes of other work-related variables, such as workplace satisfaction or workgroup cohesiveness (Mikulincer & Shaver, 2007). Notably, studies have not focused on using a self-report measure specifically designed to target attachment-related experiences in close working relationships. Although self-report measures of romantic attachment have made inroads into study of attachment processes in organizations, it may be that measures targeting attachment in close working relationships will broaden the scope of our understanding of attachment in the

workplace and provide a measure that is widely acceptable in workplace environments.

In light of the lack of self-report measures of adult attachment directly applicable to workplace relationships, this investigation examines a new measure designed for this purpose, the Workplace Relationships Inventory (WRI). The present study reports on (a) the psychometric properties of the WRI and (b) compares the WRI to existing self-report measures of adult attachment.

### **Infant Attachment Theory**

Attachment theory was first formulated by John Bowlby, a British psychoanalyst and child psychiatrist (Bowlby, 1969/1982, 1973, 1980). John Bowlby, working closely with Mary Ainsworth, a developmental psychologist and initial member of his research team, laid the conceptual and empirically grounded framework for attachment theory. Bowlby's attachment theory, a lifespan developmental theory, explicates the importance of a child's bond with its mother and the enduring effect of this primary relationship on personality development (Bowlby, 1956, 1969/1982, 1973, 1980). Attachment theory addresses the stability and vicissitude of close relationships throughout the lifespan and the psychological, biological, cognitive and emotional correlates of the attachment system (Bowlby, 1979).

Bowlby thought of *attachment behavior* as any form of behavior, whether clinging or crying or smiling, intended to attain or retain proximity to a preferred individual, usually a parent (Bowlby, 1980). From the very first weeks of life, infants discriminate their mother from other stimuli or persons, and within the first three months show preference for the mother over others (Bowlby, 1969, 1982). Preference for the mother is indicated by different kinds of behavior, such as vocalization, smiling, postural orientation, following and burying of face, differentially expressed toward the mother (Ainsworth, 1967). With repeated bids for proximity, attachment behavior leads to the formation of attachment bonds or attachments to the mother, an *attachment figure* (Bowlby, 1980). Initially, attachment bonds are developed between infant and a principle attachment figure, usually the mother, and concurrently the infant forms attachment bonds with other important figures, such as older siblings and grandparents (Bowlby, 1969/1982). In later childhood, adolescence and adulthood, attachment bonds are formed with important others, such as peers or romantic partners. (Bowlby, 1980)

Fundamental to his theory was Bowlby's focus on the biological bases of attachment behavior (Cassidy, 1999). From an evolutionary perspective, Bowlby theorized that attachment behaviors are biologically evolved behaviors that increase the likelihood of an infant's proximity to a caregiver, which in turn increased the likelihood of protection from predation (Bowlby, 1969/1982). Bowlby reasoned that natural selection favored infants who were attached to their

caregivers, because caregivers offered protection from predation (Bowlby, 1969/1982).

Attachment behaviors are mediated by a *behavioral system*, which Bowlby (1969/1982) thought of as an inborn, biologically-evolved, cognitive, goal-corrected program, with the specific goal of seeking proximity to a primary caregiver. Bowlby derived his conceptualization of the *attachment behavioral system* from the domains of ethology, the biological study of animal behavior, and cybernetics (systems theory), the study of feedback, communication and control in living organisms, machines and organizations (Bowlby, 1969/1982). From an ethological perspective, Bowlby described attachment in terms of behavior which is common to the human species and that organizes behavior to increase chances of survival (Bowlby, 1969/1982). From a cybernetic perspective, Bowlby described the workings of the attachment behavioral system as utilizing feedback about its own performance to regulate its behavior. Taken together, Bowlby (1969/1982) drew on aspects of ethology and cybernetics, conceptualizing the attachment system as an organizing behavioral control system for achieving the set goal of survival.

The attachment behavioral system within the individual is organized by a variety of behaviors in response to internal and external stimuli (Cassidy, 1999). As Sroufe and Waters (1977) noted, the attachment behavioral system “is not a set of behaviors that are constantly and uniformly operative) (p.1185). Rather,

attachment behaviors operate flexibly, “in terms of set goals, mediated by feeling, and in interaction with other behavioral systems” (Sroufe & Waters, 1977, p.1185). The dynamic organization of the attachment behavioral system allows the individual to operate in a goal-corrected manner, flexibly responding to context in pursuit of a set goal (Cassidy, 1999). Bowlby (1973) theorized that developmental trajectories turn, “... at each and every stage of the journey on an interaction between the organism as it has developed up to that moment and the environment in which it then finds itself” (p.412). Viewed as an organizing construct, the attachment control system regulates behaviors which differ based on the developmental stage of the organism and the context in which it finds itself. This non-linear, dynamic viewpoint of human development suggests that attachment behaviors, unlike traits, may be different over time and depend on context. For instance, whereas clinging behavior is conducive to securing proximity to a caregiver in infancy, it may not go over so well as an adult with a colleague in the workplace. Thus attachment, as an organizing construct, is always rooted in early infant-caregiver experiences, but takes on different roles at successive stages of development (Bowlby, 1969/1982).

In consideration of the evolving dynamic between the individual and the environment, Bowlby described how individual and environmental factors contribute, under varying circumstances, to activating and deactivating the attachment system (Cassidy, 1999). Bowlby theorized that the attachment

behavioral system operates within set limits, activating and deactivating to allow, for instance, an infant to maintain optimal distance from its mother (Bowlby 1969/1982). Likewise, attachment-related behaviors such as clinging to a primary caregiver are initiated in the face of threat from the surrounding environment, and terminated with achievement of the goal of proximity (Cassidy, 1999). Within the context of set limits, Bowlby (1969/1982) conceptualized the infant as using the mother as a “safe haven” in times of danger.

Integral to the organization of the attachment behavioral system are cognitive components, such as “representational models” or “internal working models” which are mental representations of the self in relation to the environment and an attachment figure (Bowlby, 1969/1982). Bowlby proposed that internal working models are formed in early interactions with caregivers and serve as a template for predicting how future interactions will go with other important figures (Bowlby, 1969/1982, 1973). From a cybernetic and cognitive perspective, the attachment behavioral system utilizes (a) feedback from efforts to achieve proximity and (b) representational models of the self in relation to the environment, to modify successive attempts to achieve the primary goal of proximity to an attachment figure (Bowlby, 1980).

Bowlby (1969/1982) proposed that the attachment behavioral system is intricately linked to other biologically based behavioral systems, such as the exploratory behavioral system. He described exploratory behavior as involving

(a) an orienting response to, (b) a bodily approach to, and (c) an investigation of a stimulus object. According to Bowlby (1969/1982), the goal of the exploratory behavioral system is to promote knowledge about how things work in the environment. The two systems are linked in such a way that when the attachment behavioral system is activated, exploration declines, and conversely, when the attachment system is not activated, exploration increases (Cassidy, 1999). From an evolutionary perspective, the dynamic interplay of these two systems is thought to ensure protection of the young through maintaining proximity to caregivers, while gradually using exploration to learn about the environment (Cassidy, 1999). Ainsworth (1963) conceived of this interplay as the infant using an attachment figure as a *secure base* from which to explore. Bowlby (1973) further speculated that in addition to physical proximity, the infant relies on psychological proximity to an attachment figure. Sroufe and Waters (1977) characterized the importance for the infant of sensing that the attachment figure will be available if needed as a sense of “felt security.”

Ultimately, attachment behaviors, which arise out of the organization of the attachment behavioral system, lead to the formation of attachment bonds or attachments (Cassidy, 1999). Both Bowlby (1969/1982) and Ainsworth (1989) conceived of attachment bonds as a specific class of affectional bond. Ainsworth (1989) characterized an affectional bond as involving (1) persistence (not transient in nature), (2) mental representation within an individual who is bonded,

(3) a partner who is non-interchangeable, and (4) a need to maintain proximity, and feeling distress upon involuntary separation. An attachment bond, is characterized by all four of these criteria, plus the seeking of security and comfort in the relationship with the partner (Ainsworth, 1989).

Bowlby put forward two major hypotheses regarding individual differences in attachment (Bowlby, 1969/1982, 1973). Bowlby's hypotheses have generated a vast and profound line of research on attachment processes in infancy/childhood through adulthood (see Cassidy & Shaver, 1999 for a review). First, Bowlby predicted that the responsiveness of a caregiver in early infancy (within the first year) influences individual differences in the quality of attachment in later infancy. Mary Ainsworth and her research team helped lay the groundwork for attachment theory and conducted the first observational studies in classifying the quality of attachment organization in infant-mother dyads (Ainsworth, Blehar, Waters, & Wall, 1978). Ainsworth et al. (1978) identified three patterns of infant attachment, *secure*, *anxious* and *avoidant*. The secure type of infant exhibited behaviors consistent with normative developmental theory (Bowlby, 1969/1982), such as using the attachment figure as a secure base for exploration, and the insecure infant types, anxious and avoidant, differed in their abilities to exhibit the secure base phenomenon (Ainsworth et al. 1978). Her team's pioneering work opened the door to experimental research of attachment in infancy and childhood (see Kerns, Schlegelmich, Morgan, & Abraham, 2005;



and Solomon & George, 1999 for reviews). Second, Bowlby predicted that internal working models, which are based on infant-caregiver interactions, influence the quality of all other later relationships and individual differences in personality. Bowlby's conceptualization of internal working models as representations of attachment experiences provided a verifiable basis for empirically understanding their ongoing influence in adulthood. Main, Kaplan, and Cassidy (1985) were the first to use an interview to assess adults' internal working models of attachment as a means of classifying attachment style. Main et al. (1985) showed that their interview method of classifying an adult's state of mind with respect to attachment was strongly associated with the child's behavior toward that adult using Ainsworth's (1978) observational method. Main and her group (1985) set the stage for adult attachment research (Hesse, 1999).

### **Adult Attachment Theory**

Bowlby (1969/1982) stated that human attachments serve a "vital role from the cradle to the grave" (p.208). He theorized that attachment bonds in infancy are similar to love relationships in adulthood (Bowlby, 1969/1982). Although Ainsworth's (1963, 1972, 1973, 1978) early work focused on providing a normative account of development during the first year of life, her later theorizing (1989, 1991) continued to account for the continuity of attachment system components throughout the lifecycle and across generations. For instance,

Ainsworth (1991) theorized that the secure base phenomenon, a function of the attachment behavioral system, is a predominant feature of secure attachment relationships in adulthood. Although Bowlby and Ainsworth theorized about the development of attachments throughout the lifespan, they provided few guidelines regarding its functioning and expression in adolescence and adulthood (Crowell, Fraley, & Shaver, 1999). Their early work sparked the interest of a broad range of scholars and researchers who have shouldered the legacy of the original theory.

Adult attachment researchers and theorists have attributed the continuity of attachment patterns from infancy to adulthood to three main sources, including (1) the parent-child attachment relationship, (2) past experiences in romantic and peer relationships, and (3) current adult attachment relationships (Crowell, Fraley, & Shaver, 1999). As an innate, adaptive control system, the attachment behavioral system in adulthood functions in a self-regulatory fashion just as it does in childhood, activated by stress or danger, promoting proximity seeking, deactivating in times of safety and security, and working in concert with the exploratory behavioral system (Crowell, Fraley, & Shaver, 1999). An adult, however, unlike a child, serves as both an attachment figure or caregiver and an attached person or care receiver (Crowell, Fraley, & Shaver, 1999).

Mikulincer and Shaver (2007) elaborated a control systems model for understanding the activation and functioning of the attachment system in adulthood which is analogous to Bowlby's initial theorizing about how the

attachment system works in infancy. Mikulincer's and Shaver's (2007) control systems model assumes that (a) all aspects of the attachment system can operate either consciously or unconsciously in the adult mind, (b) individuals depend on attachment figures throughout the lifespan, and (c) any threatening event, real or imagined, can activate the attachment system. Like Bowlby's model, Mikulincer's and Shaver's (2007) model is sensitive to environmental influences and personal dynamics, and as such, is helpful for understanding individual differences in attachment-related self-regulation in various contexts.

Much like attachment system functioning in infancy and early childhood, the adulthood attachment system is characterized by continual monitoring and appraising threatening events and seeking availability of an attachment figure in the face of a threat (Mikulincer & Shaver, 2007). In the case that an attachment figure is available and effectively responsive to an adult's needs, the results are the alleviation of distress and a feeling of security (Mikulincer & Shaver, 2007). The positive outcome of attachment figure availability, felt security, reinforces the use of proximity seeking as an effective behavioral strategy and facilitates a "broaden-and-build" cycle of attachment security within the individual (Frederickson, 2001). In describing the "broaden-and-build" cycle, Frederickson (2001) goes on to explain that repeated experiences of felt security contribute to building self-confidence, self-esteem and positive expectations about the future. Thereby, secure individuals go on to learn that open expressions of neediness and

vulnerability result in positive outcomes, which enables them to develop close, supportive relationships. With confidence that support is available, secure individuals are then able to broaden their experience by accepting new challenges and opportunities.

The control system model (as elaborated by Mikulincer & Shaver, 2007) further postulates that in the case that an attachment figure is not available, distress builds and leads to appraisal of the viability of proximity seeking and “secondary strategies” for coping with insecurity. As in childhood, secondary strategies consist of hyperactivation and deactivation (referred to by Bowlby, 1969/1982 as “activation” and “termination”) of proximity seeking efforts. Hyperactivating strategies naturally draw attention to one’s vulnerability and inability to cope as a means of garnering support. Over time, this focus on helplessness is reinforcing and leads to a negative impact on self-image, social perception, relationship satisfaction and emotional stability. Deactivating strategies are employed to minimize distress through the minimization of attachment needs. Over time, denial of vulnerability and dependency needs may lead to “compulsive self-reliance” and a distorted self-perception. Thus, both hyperactivating and deactivating strategies are employed to minimize distress and are therefore self-reinforcing.

Whereas initially a child normally seeks proximity to an attachment figure within the immediate family, when an adult’s attachment system is activated, the

adult can seek proximity from various others who serve as attachment figures, including romantic partners, friends, mentors and leaders at work (Ainsworth, 1991; Bowlby, 1969/1982; Weis, 1982). From the start, Bowlby (1973) proposed that social experiences with attachment figures provide the basis for internal working models of relationships. Mental representations of past attachment relationships can be generalized across future relationships with a variety of others (Brumbaugh & Fraley, 2006).

Longitudinal studies bear out the theoretical continuity of attachment style throughout the lifespan. In a meta-analysis of 27 longitudinal studies of attachment classifications measured in infancy and adulthood, Fraley (2002) demonstrated moderate continuity (mean correlation of .27,  $N = 218$ ) in support of a “prototype perspective” of how “representations of early experiences are retained over time and continue to play an influential role in attachment behavior throughout the life course.” Sroufe, Egeland, Carlson, and Collins (2005) presented findings from a 30-year longitudinal study of attachment from infancy to adulthood in which they assessed the quality of attachment in infancy among more than 200 mother-infant dyads and followed their cohort, measuring attachment-related behaviors at successive developmental stages. Sroufe et al. (2005) found that attachment history, as assessed in infancy, is related to the development of self-reliance, emotional regulation and social competence over the course of the lifespan. Moreover, Sroufe’s team (2005) demonstrated that

development of these capacities is evidenced by different behaviors in different contexts depending on the development of the person at a certain developmental stage, providing support for the attachment as an organizational construct.

Between 1987 and 2007, over 50 studies documented associations between attachment-related mental representations of parents and experiences in close adult relationships (as reviewed by Mikulincer & Shaver, 2007). At an early stage in the adult attachment research literature, Hazan and Shaver (1987) conceptualized romantic love in adulthood as having some overlap with the quality of affectional bonds formed in infant-caregiver relationships, and were the first to demonstrate that specific characteristics of infant-caregiver relationships influence the particular quality of adult romantic relationships. For instance, they found that discomfort with closeness in infant-giver relationships was associated with fear of intimacy in romantic relationships (Hazan & Shaver, 1987).

In 1990, Hazan and Shaver extended their initial research on adult romantic relationships into the workplace. Hazan and Shaver (1990) proposed that adult work activity is functionally similar to Bowlby's conceptualization of childhood exploratory activity in the context of the attachment organizational system, and that the quality of adult attachment facilitates work functioning in a similar manner as infant attachment supports exploration. The investigators (1990) theorized that for the adult, the workplace represents an opportunity for exploration and creativity, analogous to free play and exploration in childhood.

They reasoned that the workplace can also be threatening, as it challenges workers' skill set, adaptability, self-control, communication skills, and flexibility, among other things. As with children, adults thrive on the organizational stability offered by a safe haven and secure base, or romantic partner, and secure relationships at home are thought to promote self-confidence, creativity, productivity, and relationship satisfaction at work (Hazan & Shaver, 1990).

Hazan and Shaver (1990) compared self-reports about experiences in romantic relationships and workplace orientation and found that the experiences of workers with insecure attachment styles (anxious and avoidant) were compromised compared to securely attached workers. Following their groundbreaking study, researchers have become increasingly interested in the interface between attachment system functioning and organizational processes (see Mikulincer & Shaver, 2007 for a review). In addition to studying individual outcomes in the workplace, researchers have proposed that attachments are formed between individuals and groups and leaders and followers (Popper & Mayseless, 2003; Smith, Murphy, & Coats, 1999).

## **CHAPTER TWO**

### **Review of the Literature**

#### **ASSESSMENT OF INDIVIDUAL DIFFERENCES IN ATTACHMENT FROM INFANCY TO ADULTHOOD**

Individual differences in attachment are characterized by variations in the quality of the affective bond between an infant and caregiver, both in terms of the sensitivity of the caregiver, and the degree to which the infant effectively uses the caregiver to seek protection from the environment (Weinfield, Sroufe, Egeland, & Carlson, 1999). The first empirical investigation of attachment theory was undertaken by developmental psychologists using observational methods to study the behavior of mother-infant dyads (Ainsworth, Blehar, Waters, & Wall, 1978). The pioneering work of Ainsworth and colleagues (1978) was concerned with the first of Bowlby's two main propositions, that individual differences in attachment are based on the quality of care giving in early infancy (Bowlby, 1962/1989, 1973). In studying Bowlby's hypothesis, the Ainsworth research team (1978) focused on observing infant attachment behaviors, such as clinging and crying, in relation to a primary caregiver. Consistent with Bowlby's (1969/1982) conceptualization of the attachment behavioral system as an organizing construct, Ainsworth et al. (1972) conceived of individual differences in attachment style as being characterized by the type of attachment behavior (e.g., clinging), timing of



the behavior (e.g., in the face of threat), effectiveness of the behavior (e.g., in attaining proximity), and the context in which the behavior occurs (e.g., in the face of separation from the caregiver). As noted by Weinfield et al. (1999), all infants express attachment behaviors at some point in time, depending on the degree to which an infant perceives the environment as threatening. In normative development, it is expected that an infant will cling to a caregiver in the face of a threat, and will return to exploring its environment in the absence of threat; it would be maladaptive to for an infant to cling to a caregiver in absence of a perceived threat (Weinfield, et al., 1999). Clinging, viewed as an attachment behavior, is relevant by virtue of the overall context in which it occurs, rather than simply the fact that it occurs at all. Thus, it would be misleading to count the number of times an infant cries without taking into consideration the context in which the infant finds itself. In this overall light, the Ainsworth team (1978) made a significant contribution to advancing the empirical investigation of attachment theory by identifying patterns of attachment behaviors, rather than simply counting the number of expressed attachment behaviors.

Ainsworth's pioneering work investigating the developmental roots of the attachment system with infant-mother dyads at the behavioral level was subsequently extended by developmental and clinical psychologists in studies of attachment at the representational level by using interviews to assess parents' "state of mind with respect to attachment" (Hesse, 1999; Main, Kaplan, &

Cassidy, 1985). Main and her research team (1985) took on Bowlby's second major hypothesis, that internal working models are based on early infant-caregiver interactions and influence later relationships. Main et al. (1985) were interested in the "adult's overall working model of attachment," and they developed the Adult Attachment Interview (AAI) to elicit adults' "descriptions of relationships, specific supportive memories, contradictory memories, assessments of relationships in childhood, and current assessments of the same experiences and relationships." Main et al.'s (1985) AAI has been studied extensively around the world (see Hesse, 1999 for a review), and has been adapted by other researchers in the development of interviews to assess adult attachment in various close relationships: the Attachment Style Interview (Bifulco, Lillie, Ball, & Moran, 1998); the Couple Attachment Interview (Alexandrov, Cowan, & Cowan, 2005); the Current Relationship Interview (Crowell & Owens, 1996); the Family and Peer Attachment Interview (Bartholomew & Horowitz, 1991); the Marital Attachment Interview (Dickstein, Seifer, St. Andre, & Schiller, 2001); and the Romantic Relationship Interview (Furman, Simon, Shaffer, & Bouchey, 2002).

Around the same time as Main and her team were launching investigations of attachment at the representational level, a divergent line of research was initiated by social and personality psychologists interested in applying Bowlby's and Ainsworth's ideas to the study of romantic relationships (see Feeney, 1999 for a review). Hazan and Shaver (1987) were the first to develop a self-report

measure of adult attachment style in regard to romantic relationships. Various self-report measures of adult attachment style have grown out of Hazan and Shaver's first instrument (Mikulincer & Shaver, 2007).

During the past two decades, two rather distinct lines of attachment research have grown out of Bowlby's original attachment theory, and have diverged in their conceptualization and assessment of individual differences in attachment (Shaver & Mikulincer, 2002). The first line of research started with developmental psychologists who used observational methods to study infant-mother dyads (Ainsworth, Blehar, Waters, & Wall, 1978), and was extended using interview methodologies in the investigation of parents' state of mind with respect to attachment (Main, Kaplan, & Cassidy, 1985). The second line of research was begun by social and personality psychologists (Hazan & Shaver, 1987) who developed self-report measures for assessing attachment-related emotions and behaviors in romantic relationships. Developmental theorists have focused on the primacy of the infant-caregiver dyad, and favored observational, interview and projection measures for assessing attachment behaviors and mental representations of child-parent experiences (Shaver & Mikulincer, 2002). Social and personality theorists have focused on romantic and other social relationships, and favored self-report and observational methods for assessing the quality of attachments (Shaver & Mikulincer, 2002). Although the two research traditions have branched off in different directions, both traditions are rooted in Bowlby's

original theorizing about human emotional attachments, and both kinds of measures derive individual attachment classifications similar to Ainsworth et al.'s (1978) original attachment styles, secure, anxious and avoidant (Crowell, Treboux, & Waters, 1999). The studies of adult attachment are based on Ainsworth et al.'s (1978) early work, and are concerned with how attachment-related aspects of personality continue to develop throughout the lifespan and how they influence other behavioral systems. This chapter reviews the conceptual distinctions between different measures of attachment developed by researchers in the developmental and social/personality traditions. Psychometric properties of each instrument are considered.

### **The Strange Situation**

Mary Ainsworth, who collaborated with Bowlby, defines attachment as an enduring affectional bond formed between two persons (Ainsworth, 1989). Ainsworth and her colleagues developed an empirical assessment procedure for measuring individual differences in attachment orientation involving home observation of nonverbal behaviors of the mother-infant dyad in the infant's first year of life and a laboratory assessment called the "Strange Situation" (Ainsworth et al., 1978). The Strange Situation involves eight scripted laboratory episodes in which a caregiver, her 12- to 18- month-old infant and a stranger are observed in a series of separations and reunions. The episodes in which a stranger is introduced

into the situation or the mother is separated from the infant are intended to signal danger and activate the infant's attachment system. Ainsworth et al. (1978) observed the interactive behavior between infants and caregivers during the eight episodes and thereby classified patterns of infant behavior toward the mother. The infant's attachment relationship with the mother was classified into one of three main groups, or attachment styles, *avoidant*, *anxious* or *secure*. In the Strange Situation, the *avoidant* infant is characterized by a lack of interest in the presence of the caregiver, agitation when she leaves the room, wariness about the stranger, and little fussing when the caregiver returns to the room. The *anxious* infant is hypervigilant about the caregiver's presence and his ability to make contact with her, wariness about the stranger, a high level of visible distress when the mother leaves the room and resistance and anger when she returns. The *secure* infant is characterized by easy interactions with the caregiver, interest in exploring the situation, only mild wariness toward the stranger, upset when the caregiver leaves the room, and relief and proximity seeking when she returns. Using a discriminant function analysis, Ainsworth et al. found that two linear functions most accurately assigned infants into one of the three attachment categories, thereby mapping attachment *anxiety*, *avoidance* and *security* as regions in a two-dimensional space. Ainsworth et al. conceptualized the two dimensions as (1) *avoidance* of closeness and dependency and (2) *anxiety* about a caregiver's availability.

In a later study of Strange Situation classifications, Main and Solomon (1986) reported that approximately 15% of infants are difficult to classify using Ainsworth et al.'s (1978) original classification system. Main and Solomon (1986) described the behavior of the infants in this group as lacking a coherent attachment strategy in regard to the mother and thereby created an additional attachment style labeled as “disorganized/disoriented.” The infants who fall into the disorganized/disoriented are also assigned into one of the three primary categories providing the best fit for the infant (Siegel, 1999).

In a meta-analysis of 1,584 Strange Situation classifications in North American, non-clinical samples of children from 12-24 months of age, 67% were classified as secure, 21% as avoidant, 12% as ambivalently attached, and 15% as disorganized/disoriented (van Ijzendoorn, Goldberg, Krronenberg, & Frenkel, 1992). Studies of intercoder reliability, involving inter- and intra-laboratory comparisons, have ranged from 80% to 88% (Carlson, Cicchetti, Barnett, & Braunwald, 1989; Lyons-Ruth, Repacholi, McLeod, & Silva, 1991; Solomon & George, 1999). Short-term stability, between two and six months, of attachment classifications ranges between 50% and 96% (Solomon & George, 1999). Long-term stability of attachment classifications from 12-18 months to 60 months has been shown to be quite high at 82% (Main & Cassidy, 1988; Wartner, Grossmann, Fremmer-Bombik, & Suess, 1994).

In the original sample of infant-mother dyads, Ainsworth et al. (1978) found that patterns of secure and insecure infant behavior in a structured laboratory environment were related to observed patterns of behavior in the home and in other contexts. At home, for instance, infants classified as anxious in the Strange Situation cried more than secure infants. Similarly, mothers showed greater sensitivity to the signals from secure (as classified in the laboratory) versus insecure infants. This link between Strange Situation attachment classification and home behavior was confirmed in another study (Vaughn & Waters, 1990) using an observation-based Attachment Q-Sort method to qualify infant attachment on a secure continuum. In home observations, Vaughn and Waters found that infants who were secure in their relationship with their mothers scored in the secure range on the Q-Sort. Additionally, in contexts outside the home, infants classified as secure in the Strange Situation have been found in later childhood to have longer attention spans and to be more empathic, socially competent and happier than insecure types (Bretherton, 1985).

### **Adult Attachment Interview (AAI)**

On the basis that infants exhibited consistent patterns of behavior at home and in the laboratory, and that their attachment classification correlated with observed behavior in other contexts, Main, Kaplan and Cassidy (1985) inferred that these stable individual differences in behavior were attributable to relatively

stable mental representations of the self in relation to important others. In earlier years, Bowlby (1969/1982, 1973, 1980) had termed these mental representations “internal working models,” which he speculated enabled a person to predict and prepare for future interactions with important relationship partners. Building on Bowlby’s theorizing about internal working models and the Ainsworth research group’s early infant observational work, Main, Kaplan and Cassidy (1985) extended childhood attachment theory and research into the adult realm by re-conceptualizing individual differences in attachment as differences not only in nonverbal behavior but also as differences in “patterns of language and structures of the mind.” Main and her research team (1985) called their re-conceptualization “a move to the level of representation.” Main and her group focused on the mental organization of information about one’s self in relation to important others and how this attachment-specific organization of experience at the mental level guides the attachment behavioral system. Main and team redefined the internal working model as “a set of conscious and/or unconscious rules for the organization of information relevant to attachment and for obtaining or limiting access to that information, that is, to information regarding attachment-related experiences, feelings, and ideations” (Main, Kaplan & Cassidy, 1985, p. 66). In contrast to Ainsworth’s observational methods, Main and her colleagues used an interview method for eliciting verbal responses to questions about



autobiographical attachment-related experiences as a means of assessing an adult's organization and accessibility of information relevant to attachment.

George, Kaplan and Main (1985) created the Adult Attachment Interview (AAI) to assess an adult's "current state of mind with respect to attachment." Up until this point, research had focused almost exclusively on nonverbal attachment-related behavior and its relation to Ainsworth's Strange Situation. In contrast, the AAI is a semi-structured, hour-long interview consisting of 18 questions in which the interviewer asks the adult interviewee about past experiences with parents and the meaning that the interviewee associates with these experiences (Main, Kaplan & Cassidy, 1985). For example, one of the 18 items of the interview asks the participant to provide five adjectives that best describe the participant's relationship with his or her mother/father during childhood (Hesse, 1999). The interviewer then asks the participant to provide memories or experiences that led them to choose each adjective. The entire interview is transcribed and quality of the subject's discourse is analyzed. Hesse (1996) has suggested that the AAI challenges the subject to recall attachment-related memories while maintaining a collaborative and coherent discourse with the interviewer.

Main and Goldwyn (1984; 1998) developed a scoring system for the AAI that emphasizes the quality of the discourse between the interviewer and interviewee. In line with the view that internal working models operate largely unconsciously, the coding system focuses less on the manifest content of the

interviewee's report, and more on the quality of the narrative (Main, Kaplan & Cassidy, 1985). For instance, Main and her colleagues reasoned that an interviewee's access to attachment-related memories will be limited in cases of insecure attachment, and the quality of attachment will be evidenced by the degree to which the interviewee's narrative is, for example, balanced, consistent, and coherent. Main and Goldwyn (1998) defined coherence as "a connection or congruity arising from some common principle or relationship; consistency; [or] connectedness of thought, such that the parts of the discourse are clearly related, form a logical whole, or are suitable or suited and adapted to context" (p. 44). Accordingly, Main and Goldwyn found it important that an interviewee's manner of speech was internally consistent and conversationally cooperative, not excessively or inappropriately verbose or brief, and rather appropriate to the context and flow of the interview (Hesse, 1999). In refining their classification system, Main and Goldwyn (1998) found that their conceptualization of coherence was related to the work of Paul Grice (1975; 1989), a linguistic philosopher, on principles of cooperative discourse. Grice (1975; 1989) proposed four maxims by which effective communication is achieved in cooperative, coherent discourse: (1) *Quality* – be truthful, and have evidence for what you say, (2) *Quantity* – be succinct, and yet complete, (3) *Relation* – be relevant to the topic at hand, (4) *Manner* – be clear and orderly. Transcripts that evidenced

adherence to or violations of Grice's maxims were classified accordingly, as secure or insecure (Main & Goldwyn, 1998).

The Main & Goldwyn (1984; 1998) scoring system is comprised of two primary scales, including (a) inferred early experiences with each parent and (b) state of mind with respect to attachment. Although both scales emphasize the importance of the quality of the discourse between the interviewer and interviewee, the inferred early experiences with each parent scale is also concerned with content-oriented parameters such as the value the interviewee places on attachment relationships (Hesse, 1999). The interviewer forms an impression of the interviewee's valuation of attachment relationships, making a judgment which is not necessarily based on the interviewee's literal statements, because the interviewee may be unconsciously or defensively limiting information (Mikulincer & Shaver, 2007). For instance, an interviewee might describe his parent as loving, but then launch into a number of stories about the parent which, in the interviewer's opinion, cast the parent in a rejecting light. In this case, the interviewer rates the degree to which it seems that the interviewee's parent was rejecting, despite the interviewee's conscious description of the parent as loving. Regarding the state of mind scale, the coder focuses on the quality of the interviewee's discourse, such as whether the interviewee presents a coherent narrative of attachment-related experiences. In the case that the interviewee's narrative is marked by such things as swings in affect, lack of details, or

exceptional brevity or verbosity, the discourse is rated to the degree of its incoherence (Mikulincer & Shaver, 2007). The scale score patterns are used to classify interviewees as “free and autonomous with respect to attachment,” “dismissing of attachment,” “enmeshed and preoccupied with attachment,” or “unresolved/disorganized.”

In their initial study, Main, Kaplan and Cassidy (1985) studied a sample of adult parents whose children’s attachment orientation had already been classified by the Strange Situation. Main et al. correlated the children’s Strange Situation attachment classifications with their parent’s recollections about past experiences with parents. Main and her colleagues found that a parent’s AAI classification (secure/autonomous, dismissing, preoccupied, and unresolved/disorganized) predicted, respectively, the quality of the child’s attachment style as measured by Ainsworth’s Strange Situation (secure, avoidant, anxious, and disorganized/disoriented). For the mother, the correspondence of her attachment classification to her infant’s attachment style was strong ( $r = .62, p < .001$ ) and good ( $r = .37, p < .05$ ) with respect to the father (Main et al., 1985). More specifically, Main’s group found that Strange Situation infant behaviors were associated with AAI parent’s recollections of childhood experiences. For instance, the behavior of an infant who avoided the mother during one of the reunion episodes of the Strange Situation was correlated with the mother’s lack of recall of childhood experiences during the AAI interview.

A meta-analysis of 14 studies (18 samples consisting of 854 dyads) comparing Strange Situation infant attachment orientation to AAI parent's state of mind with respect to attachment, confirmed the predictive validity of the AAI, showing a 75% correspondence between secure versus insecure classifications (van IJzendoorn, 1995); each distinct AAI classification was related to its corresponding Strange Situation style. van IJzendoorn's meta-analysis (1995) also showed in its review of 10 different studies that parental state of mind with respect to attachment was strongly associated with parental responsiveness to the child. The AAI has been shown to be stable across time from 1-48 months with correspondence ranging from 70%-95% (Bakermans-Kranenburg & van IJzendoorn, 1993; Benoit & Parker, 1994; Sagi et al. (1994); Hesse, 1999). Inter-rater reliability has been established between 80%-82% (Hesse, 1999; van IJzendoorn & Bakermans-Kranenburg, 1997). The AAI demonstrates strong discriminant validity from non-attachment-related autobiographical memory, social desirability, and verbal and performance intelligence (Bakermans-Kranenburg & van IJzendoorn, 1993). In a recent meta-analysis of more than 200 studies presenting data on over 10,000 Adult Attachment Interviews, Bakermans-Kranenburg and van IJzendoorn (2009) found that the distribution of AAI classifications in combined samples of North American, non-clinical mothers was 55% secure, 16% dismissing, 9% preoccupied, and 19% unresolved. The comparable distribution of Strange Situation child classifications reported by van

Ijzendoorn et al. (1992) (67% secure, 21% avoidant, 12% ambivalent, and 15% disorganized/disoriented) are consistent with Main et al.'s (1985) report of a good correspondence between AAI and Strange Situation classifications.

### **Self-Report Measures of Adult Attachment**

Self-report measures of adult attachment elicit respondents' feelings and experiences in adult relationships (Mikulincer & Shaver, 2007). Self-report measures of adult attachment focus on different kinds and levels of social relationships as the targets in assessing attachment-related processes (Mikulincer & Shaver, 2007). For example, measures ask about experiences in relationships with specific kinds of people, including parents, friends and romantic partners, about relationships in general or a specific relationship with one person. Whereas some self-report instruments measure attachment patterns using categorical descriptions of attachment styles, others use continuous ratings of multiple items designed to tap the dimensions of attachment (Mikulincer & Shaver, 2007). While some (Backstrom & Holmes, 2001) argue that the number of dimensions underlying the attachment construct are unclear, others (Brennan, Clark, & Shaver, 1998) argue that the items on self-report attachment measures boil down to two primary dimensions, commonly called anxiety and avoidance. This section reviews the development of some of the more widely used self-report measures of adult attachment (Mikulincer & Shaver, 2007). Differences in instrument design,

conceptualization of the attachment construct and psychometric properties are considered.

### *The Attachment Style Measure*

In 1987, around the same time of the emergence of the AAI (1985), Hazan and Shaver developed the first self-report measure of adult romantic attachment. Hazan and Shaver (1987) conceptualized romantic love between adult lovers as an attachment process similar to the bond formed between infant and parent. Further, Hazan and Shaver proposed that adult romantic relationships are grounded in attachment relationships formed in infancy. As social psychologists interested in the study of feelings and behavior in romantic relationships, Hazan and Shaver (1987) conceptualized adult attachment in terms of internal representations that guide interpersonal behavior and information processing, and strategies that individuals use to feel secure. In constructing their measure of romantic attachment, Hazan and Shaver wrote three brief, multi-sentence descriptions of each of the Ainsworth et al. (1978) attachment styles, as summarized in her original book, and asked participants to rate how well each of the descriptions characterized their feelings in romantic relationships (see pp. 2-3 of Chapter 1). In an attempt to link self-reported experiences in romantic relationships with internal working models of attachment, the investigators also

asked participants about their beliefs about love and relationships and memories about their early experiences with parents.

In a sample of 620 respondents, Hazan and Shaver (1987) found that the frequencies of the three attachment styles (56% secure, 24% avoidant, and 20% anxious) were comparable to the frequencies of infant-parent attachment styles (62% secure, 23% avoidant, and 15% anxious) summarized by Campos et al. (1983) in a review of American studies of infant-parent attachment style. Hazan and Shaver found that participants' self-reported attachment style was related to different types of love experiences. For instance, secure lovers described love experiences as trusting, and avoidant lovers characterized experiences by fear of intimacy. The findings extended to working models or beliefs about love relationships, with differences shown among the attachment styles in beliefs about the availability and trustworthiness of romantic partners. Finally, Hazan and Shaver found parallels between memories of infant-mother interactions and romantic attachment style. For instance, secure lovers as compared to insecure lovers recalled a warmer relationship with parents. With these results, Hazan and Shaver (1987) purported to advance attachment theory by showing that adult attachment behaviors in romantic relationships are conceptually similar to infant patterns of attachment and are related to other theoretically relevant attachment variables, thereby demonstrating that adult attachment style can be tapped by a self-report instrument.



In their original study, Hazan and Shaver (1987) did not report on the psychometric properties of their instrument. In subsequent studies involving the Attachment Style Measure (ASM), moderate reliabilities have been reported for the three scales, with alpha coefficients ranging from .45-.64 (Chongruksa, 1994; Vacha-Haase, Murphy, Rotzien, & Davenport, 1994). Test-retest reliability for a period of two weeks for the three scales has been reported between .48 and .65 (Levy & Davis, 1988). Hazan and Shaver (1987) performed a factor analysis that yielded three factors they termed “comfort with closeness, concern about insufficient closeness, and discomfort with closeness.” In using discrete prototypes to categorize attachment style, Hazan and Shaver moved away from mapping attachment style on a continuum as Ainsworth (1978) had done in identifying individual variability of attachment styles. A problem with categorical measures is that they assume that individual differences between people within a category are unimportant (Mikulincer & Shaver, 2007).

Recognizing the importance of individual differences, future researchers adapted the Hazan and Shaver (1987) prototype measure for use in gathering continuous ratings on romantic attachment styles, thereby re-plotting adult attachment patterns in the two-dimensional space originally mapped by Ainsworth et al. (Levy & Davis, 1988; Simpson, 1990; Collins & Read, 1990). Levy and Davis (1988) asked participants to rate how well each of Hazan’s and Shaver’s prototypes of romantic attachment described them, and found that the

continuous ratings of the three attachment categories reduced to the two familiar dimensions of avoidance and anxiety.

#### *Adult Attachment Questionnaire*

Simpson (1990) broke down the three Hazan and Shaver prototype descriptions into multiple statements with which respondents could agree or disagree on a Likert scale. In developing the Adult Attachment Questionnaire (AAQ), Simpson (1990) broke down the prototypes into 13 separate propositions about how individuals feel in romantic relationships in general. In 1996, Simpson, Rholes, and Phillips expanded the AAQ from 13 to 17 items in order to increase internal consistency. Simpson et al. (1996) reported Cronbach alpha coefficients for males and females for each scale, respectively .70 and .74 for avoidance, and .72 and .76 for anxiety. Simpson (1990) factor analyzed the continuous ratings of the multiple statements and found that a two-factor solution, anxiety and avoidance, best fit the data.

#### *Adult Attachment Scale*

Collins and Read (1990) also deconstructed Hazan and Shaver's prototype descriptions into multiple statements and added items regarding one's beliefs about a partner's availability and responsiveness and one's reactions to separations from a partner. Collins and Read (1990) factor analyzed the 18

romantic statement ratings of the Adult Attachment Scale (AAS) and obtained a three-factor solution, including *discomfort with closeness*, *discomfort with dependence*, and *anxiety about being abandoned*. Collins and Read found that their scales yielded adequate reliability, with Chronbach's alpha coefficients of .69, .75, and .72, respectively, and moderate temporal stability with two-month test-retest correlations of .68, .71, .52, respectively. Collins (1996) later revised the AAS and increased internal consistency ratings to Chronbach's alpha coefficients ranging from .75 to .85. Interestingly, in a factor-analytic study of the subscales of avoidance and anxiety, Brennan et al. (1998) found that Collins's and Read's *discomfort with closeness* and *discomfort with dependence* factors correlated highly with the primary avoidance factor. Thus, Brennan et al. reduced Collins's and Read's three factors to the familiar two factors, avoidance and anxiety.

#### *Attachment Style Questionnaire*

Whereas the AAS and AAQ were derived from Hazan and Shaver's original prototype measure, the ASM, the Attachment Style Questionnaire (ASQ) was constructed afresh based on the authors' readings of Bowlby's and Ainsworth's original theorizing (Mikulincer & Shaver, 2007). The ASQ is also unique in that it consists of 40 statements rated on a 6-point scale about one's experiences in close, not romantic, relationships in general (Feeney, Noller, &

Hanrahan, 1994). Feeney et al.'s (1994) factor analysis of the ASQ resulted in five factors: *discomfort with closeness*, *viewing relationships as secondary*, *need for approval and confirmation by others*, *preoccupation with relationships*, and *lack of confidence*. Feeney et al. reported internal consistencies of the five scales with Chronbach's alpha coefficients ranging from .76 to .84, and 10- week test-retest coefficients ranging from .67 to .78. In Brennan et al.'s (1998) factor analytic study, the first two ASQ scales loaded on the primary avoidance factor, and the last three ASQ scales loaded on the anxiety factor. Again, Brennan et al.'s (1998) study provides evidence supporting the overriding two factor structure, anxiety and avoidance, of self-report measures of adult attachment based on Bowlby's and Ainsworth's original theorizing and research.

### *Relationship Questionnaire*

Following Bowlby's theoretical lead, Bartholomew (1990) proposed that the two primary dimensions of attachment, *anxiety* and *avoidance*, can be conceptualized, respectively, in terms of internal working models of *self* and *others*. Bartholomew (1990) proposed that the models of self and others could be either positive or negative. Whereas adult attachment researchers up to this point had recognized three patterns of attachment (secure, anxious and avoidant), delineated by the dimensions of anxiety and avoidance, Bartholomew proposed that the two dimensions more accurately delineate the following four patterns:

People with a positive model of self and other are *secure*; people with a negative model of self and positive model of others are *preoccupied* (similar to the anxious type); people with a negative model of self and others are *fearful* (a type of avoidance described by the three-category model of attachment); and people with a positive model of self and negative model of others are *dismissing* (a newly defined type of avoidance described by the four-category model of attachment). Figure 1 shows the two-dimensional attachment space and the four patterns of attachment delineated by the traditional axes of anxiety and avoidance. Figure 2 shows the same space conceptualized as a model of self and other.

In 1991, Bartholomew and Horowitz tested their four-category model by designing a prototype measure similar to the original Hazan and Shaver three-item measure and added a fourth item written to tap ‘dismissing avoidance.’ The Relationship Questionnaire (RQ) asks participants to indicate which prototype fits best, and also asks how well each of the four prototypes fits; the RQ thereby collects both continuous and categorical ratings. The 1991 study of the RQ elicited participants’ self-ratings of models of self and other in “emotionally close relationships” and compared the ratings to participants’ non-attachment related beliefs and feelings. Bartholomew and Horowitz found that the models of self and other were separate dimensions of participants’ orientation to close relationships and that the two dimensions can vary independently. For instance, participants classified as avoidant (both fearful and dismissing) showed difficulty

with closeness and relying on others, but they differed in their beliefs about self-worth. The new four-category model reduced to the familiar two dimensions of anxiety and avoidance, and delineated the familiar avoidance category into *dismissing* and *fearful* types. Reliability estimates for the RQ classifications are around kappa coefficients of .35, and test-retest estimates are around Pearson  $r$  coefficients of about .50 (Mikulincer & Shaver, 2007). In 1991, Brennan, Shaver, and Tobey compared the RQ with the original Hazan and Shaver (1987) measure, the ASM, and found that both loaded on two primary dimensions, conceptualized as either models of *self* and *other* or the familiar *anxiety* and *avoidance*. In 1994, Griffin and Bartholomew developed a 30-item measure based on their earlier work, the Relationship Styles Questionnaire (RSQ), to classify respondents into one of the four attachment styles (secure, preoccupied, fearful or dismissing). The RSQ (1994) also loads on two primary factors, conceived as model of *self* and *other*, or *anxiety* and *avoidance*.

#### *Experiences in Close Relationships Scale*

Given the multitude of adult attachment self-report measures that followed the original Hazan and Shaver (1987) measure, and the corresponding identification of multiple attachment-related constructs, Brennan, Clark, and Shaver (1998) conducted an extensive review of the existing measures to date. Brennan et al. (1998) factor-analyzed all non-redundant items (323) from the

existing attachment measure items (482) and found that two higher-order factors, anxiety and avoidance, underlie most of these measures. Brennan et al. selected 36 items that correlated most highly with the two higher-order factors, thereby constructing two 18-item scales tapping anxiety and avoidance. Brennan and associates modified the wording of some of the items to refer to romantic relationships and called their measure the Experiences in Close Relationships (ECR) scale. The items on the anxiety and avoidance scales of the ECR are analogous to Ainsworth et al.'s (1978) coding scales describing anxious and avoidant attachment styles. In addition to constructing a precise and comprehensive measure of attachment-related anxiety and avoidance, Brennan et al. used hierarchical and nonhierarchical clustering procedures to classify attachment patterns in a two-dimensional space. Brennan et al. showed that continuous scores on their 36-item measure clustered together into four patterns resembling Bartholomew's four-category attachment classification system. Thus, the ECR is a 36-item self-report survey comprised of two 18-item subscales measuring anxiety and avoidance which uses these continuous scores to plot attachment style in a two-dimensional space where scores cluster around secure, anxious, dismissing avoidance and fearful avoidance patterns (Brennan et al., 1998).

The ECR has become a reliable point of reference for attachment researchers by virtue of its use in hundreds of experimental research studies

(Mikulincer & Shaver, 2007). It is an amalgam of its predecessors' items most sensitive to attachment-related avoidance and anxiety. It maintains high reliability, with Chronbach's alpha coefficients around .90, and test-retest coefficients between  $r$ 's of .50 and .75, and the correlation of the two continuous scales is usually close to zero (Mikulincer & Shaver, 2007). Research has demonstrated that continuous ratings, such as those used on the ECR, of the two-dimensional space occupied by attachment patterns best characterize individual differences (Fraley & Waller, 1998). Moreover, continuous ratings on individual self-report items (ECR item: "I find it difficult to allow myself to depend on romantic partners") are more descriptive than categorical assignments (e.g., Avoidant) (Brennan, Clark, & Shaver, 1998). The ECR offers both categorical- and item-level data for understanding individual differences in attachment (Brennan et al., 1998).

### *Relationship Structures Questionnaire*

Following Brennan's teams' (1998) synthesis of the ECR, Fraley, Niedenthal, and Vicary (2006) devised a versatile 40-item measure adapted from the ECR. Fraley et al. (2006) designed the Relationship Structures (RS) Questionnaire to assess attachment patterns in a variety of relationships. The authors adapted 10 items from the ECR and used the same 10 items on four subscales assessing attachment styles with respect to four targets (i.e., mother,



father, romantic partner, and best friend). The authors intended for the measure to be versatile, referring to select interpersonal targets, thereby including as many 10 item scales as desired (Fraley, 2010). The RS has not been published, but has been used in the authors' 2006 study of individual differences in attachment related to the perception of emotional expressions. Fraley et al. (2006) reported that Chronbach alpha coefficients were greater than .89 for the anxiety and avoidance items (averaged across the four relational targets). Fraley (2010) provides psychometric properties of the RS based on preliminary work reported on his website, reporting test-retest reliability over thirty days for romantic and parental relationships, respectively at .65 and .80.

### **Interview versus Self-Report Measures**

Measures of adult attachment orientation, whether interview measures such as the AAI or self-report measures such as the ECR, are similarly grounded in Bowlby's (1979) original theorizing that "attachment behavior is held to characterize human beings from the cradle to the grave" (Jacobvitz, Curran, & Moller, 2002). Nonetheless, stark differences in the classification systems employed by each methodology have sparked a long-standing debate, revolving around which classification system most accurately assesses adult attachment style (Shaver & Mikulincer, 2002). The AAI and self-report measures of attachment differ in regard to the type of representation of relationships they

measure (Jacobvitz, Curran, & Moller, 2002). Whereas the AAI assesses adults' representation of their relationship with their parents, self-report measures have focused on representations of partners in romantic relationships and important other close relationships. Furthermore, the AAI classification system (Main & Goldwyn, 1998) purports to measure unconscious processes such as defensiveness during discussions about childhood experiences with parents, and the self-report measures focus on conscious reports of behavior in romantic relationships (Jacobvitz, Curran, & Moller, 2002). Given these differences in assessment methodology and systems of classification, it remains unclear exactly how the two assessment approaches compare.

Although some studies comparing self-report and AAI classifications have found moderate associations (Creasy & Ladd, 2005; Shaver, Belsky, & Brennan, 2000), other studies have found mild to no significant associations between classification systems (De Haas, Bakermans-Kranenburg, & van IJzendoorn, 1994; Bouthillier, Julien, Dube, Belanger, & Hamelin, 2002; Crowell, Treboux, & Waters, 1999; Holtzworth-Munroe, Stuart, & Hutchinson, 1997; Simpson et al., 2002; Treboux, Crowell, & Waters, 2004; Waters et al., 2002). Inconsistencies in classifications of interview and self-report measures of attachment may, in part, be an artifact of categorical level comparisons that do not take into account important individual differences at the item level (Mikulincer & Shaver, 2007). Shaver, Belsky and Brennan (2000) conducted a detailed comparison of the items

and subscales of the Adult Attachment Scale (AAS), a self-report measure of romantic relationships, and the coding scales of the AAI. Shaver et al. (2000) found multiple moderate-sized associations between the self-report scales and items and the AAI coder-rating variables. Further studies comparing interview with self-report measures are needed to clarify the nature of the differences in the classification systems (Jacobvitz, Curran, & Moller, 2002).

### **Attachment in the Workplace**

Attachment theory has been extended to the study of attitudes, social relations, and individual and group performance in organizational settings such as the workplace, army, and community groups (Mikulincer & Shaver, 2007). Attachment researchers have proposed that relationships formed in organizations, between leaders and followers and between individuals and groups may be similar to attachments formed between infants and parents and between adults (Popper & Mayseless, 2002; Smith, Murphy & Coats, 1999). Evidence is building to suggest that a secure attachment style is associated with a variety of positive outcomes in regard to relationships and functioning within a workplace environment (Mikulincer & Shaver, 2007).

*Individual Differences in Attachment Patterns*

Hazan and Shaver (1990) were among the first to demonstrate a link between people's romantic attachment orientations and workplace attitudes and experiences. In their 1990 study, Hazan and Shaver slightly modified their original self-report measure (the Attachment Styles Measure) to capture continuous ratings of attachment categories and compared adult attachment style to workplace related variables. Hazan and Shaver found significant differences among attachment styles in regard to work satisfaction, feelings about work and coworkers, balancing love and work, the importance of leisure time, and indices of well-being. For instance, the investigators found that insecurely attached individuals had more difficulties and were less satisfied overall at work than securely attached individuals. More specifically, as compared to securely attached workers, anxiously attached workers' reported lower work satisfaction, as characterized by perceived job insecurity and perceived lack of appreciation and recognition by coworkers. Avoidant workers reported lower work satisfaction, characterized by lower self- and other- ratings on job performance, and dissatisfaction with coworkers. In regard to the balance between love and work, securely attached individuals were more likely than insecure individuals to value and derive pleasure from relationships over work. Anxiously attached individuals reported that relationships interfered with work, and avoidant individuals emphasized the importance of work over love. Secure workers were

also significantly less likely than insecure workers to report symptoms such as depression, anxiety, hostility, psychosomatic illness and physical illness. Overall, secure individuals were more likely to report enjoying leisure time and not allowing work to interfere with relationships or health; anxious individuals were more likely to report that interpersonal issues interfered with work; avoidant individuals were more likely to report that work takes priority over close relationships and leisure time is lacking in pleasure.

Since Hazan's and Shaver's (1990) study, others studying individual differences in romantic attachment style on work performance have also found lower levels of work satisfaction among anxious and avoidant adults (Hardy & Barkham, 1994; Krausz, Bizman, & Braslavsky, 2001). The Hardy and Barkham study (1994) further demonstrated that workers with insecure attachment styles experience interpersonal difficulties in workplace relationships, with anxiously attached workers having problems with "relationships in your office," and avoidant attached workers having problems with "fellow workers." In five separate studies, involving a range of participants from various occupations and cultures, it was found that securely attached individuals are significantly less likely than those who are insecurely attached to experience burnout, or "a state of physical, emotional and mental exhaustion and lowered sense of accomplishment," (Pines, 2004). This study also demonstrated that secure individuals were more likely than insecure individuals to actively attempt to face

and solve problems related to the source of a problem. Longitudinal studies show that attachment insecurities in relation to parent-adolescent and romantic relationships predict work-related difficulties 2-3.5 years later (Burge et al., 1997; Vasquez, Durik, & Hyde, 2002). Collectively, the above studies illustrate the relevance of individual attachment style to important outcomes in the workplace.

### *Group Differences*

Mikulincer and Shaver (2007) have argued that a cohesive group may serve as an attachment figure, providing a safe haven in times of distress and a secure base for exploration. Smith, Murphy, and Coats (1999) developed a self-report measure, modeled after the ECR, of attachment-related avoidance and anxiety in regard to groups. Smith et al. (1999) found that individual attachment style in close dyadic relationships was significantly correlated with attachment style with respect to the group. Additionally, the study found that insecure attachment styles predicted lower individual engagement and identification with, and evaluation of the group, as compared with a secure style. In a series of four studies of attachment style differences in cognitions and behaviors with respect to groups, Rom and Mikulincer (2003) provided further evidence for the relevance of individual attachment style to groups. Across the four studies, attachment insecurity, as measured by (a) self-report statements about close relationships in general and (b) the ECR scale, predicted more negative group-related

representations, memories, goals and performance in group tasks. In the opposite direction, the investigators found that group cohesion reduced the deleterious effects of attachment anxiety on individual functioning within the group, providing support for the theory that a group can serve as a safe haven and thereby deactivate a hyperactivating attachment response. Taken together, these studies provide support for the idea that dyadic-level attachment styles are related to group-level attachment styles and the ability of an individual to function instrumentally within a group. These studies further suggest that individual attachment style is relevant to understanding the relationship between an individual and an organization.

#### *Attachment Style and Leadership*

The relationship between leaders and followers in organizations are theoretically similar to those of parents and children (Popper, Mayseless, & Castelnovo, 2000). Just as Bowlby (1969/1982) theorized that a parent serves as a secure base for an infant, adult attachment researchers theorize that leaders in organizations provide a similar sense of security for followers (Mayseless and Popper, 2007). Leaders, like parents, provide sensitive care giving for followers through providing support, guidance, motivation, encouragement, and an overall sense of security. Followers, like children, find a safe haven and secure base in a “stronger and wiser” leader in times of attachment system activation (Popper and

Mayseless, 2003). Sensitive leaders can provide the security needed for followers to feel safe to explore and develop in their own right. It follows that an insensitive or unavailable leader can activate, rather than deactivate, a follower's attachment system. Studies conducted in Israeli military units have demonstrated that leaders' avoidant attachment style has a detrimental effect on followers' socioemotional functioning and mental health over the course of two to four months of training (Davidovitz, Mikulincer, Izsak, Shaver, & Popper, 2007).

Mikulincer and Florian (1995) provided the first evidence of the relationship between leadership and attachment style. In a study of Israeli military recruits during four months of combat training the investigators found that securely attached recruits were more likely than anxiously attached recruits to be perceived by their fellow trainees as leaders. These results were replicated in a similar, but larger, sample in 2004 (Popper, Amit, Gal, Mishkal-Sinai, & Lisak).

Literature on leader/follower relations in organizations distinguishes between types of leaders, such as *transformational* versus *transactional* (Bass, 1985), and *personalized* versus *socialized* (Howell, 1988). Transformational and transactional leaders are characterized respectively, by their capacity to (a) empower others and promote growth and self-actualization, and (b) identify followers' needs and provide contingent reward for effort (Bass, 1999). Personalized leaders tend to be dictatorial and put their own needs in front of the needs of their followers, and socialized leaders are characterized by their tendency



to serve others and respect their followers' feelings (Howell, 1988). In a groundbreaking series of three studies involving Israeli Police officer cadets, Popper, Mayseless and Castelnovo (2000) compared leaders' attachment orientations to leadership style: Transformational and transactional. Popper et al. (2000) found that a secure attachment style was significantly associated with a transformational leadership style, whereas insecure styles of attachment were associated with lower levels of transformational leadership behaviors. Studies comparing personalized and socialized leadership styles and leadership attachment styles have found that insecure attachment styles (anxious and avoidant) are associated with lower levels of socialized leadership and higher levels of personalized leadership (Davidovitz, Mikulincer, Shaver, Ijzak, & Popper, 2007; Popper, 2002). Davidovitz et al. (2007) also demonstrated that attachment insecurities were associated with self-focused motives to lead, and had detrimental effects on the quality of leader-follower relations and followers' instrumental and emotional functioning. Overall, these leadership style studies suggest that attachment security is associated with a focus on the success of others which manifests in variables pertaining to the actual positive functioning of followers.

### **Purpose of the Present Study**

Much of the adult attachment research has relied on interviews and self-report statements about experiences with parents and romantic partners as a means of assessing attachment style (Crowell, Fraley, & Shaver, 1999). Researchers have demonstrated associations between adult attachment style, in relation to parents and romantic partners, and outcomes in organizations (Mikulincer & Shaver, 2007). However, no published studies to date have specifically focused on self-reports about attachments in close working relationships. The purpose of this research is to design and validate a new self-report measure of adult attachment style, The Workplace Relationships Inventory (WRI), tailored for use in organizational settings. For the purposes of the present study, we have adapted all of the items from the anxiety and avoidance scales of the Experiences in Close Relationships Scale (ECR) to construct a similar 36-item self-report measure to tap adult attachment style in the workplace. To this end, a group of psychologists familiar with the adult attachment literature worked together to rewrite the ECR items such that they apply to attachment-related behaviors within a workplace setting. For instance, whereas an ECR Item states, “I get frustrated when romantic partners are not available when I need them,” the same WRI item is worded, “In a close working relationship, I get frustrated when a coworker is not around as much as I would like.” Like the ECR, the WRI is

comprised of two 18-item scales measuring attachment-related anxiety and avoidance.

This study has two broad aims:

1. To understand the psychometric properties of the WRI.
2. To understand how the factors of the WRI correlate with the factors of existing measures of attachment.

## **Hypotheses**

### *Hypothesis One: Examining the factor structure of the WRI*

It is hypothesized that the WRI consists of two primary factors, attachment-related anxiety and avoidance.

### *Hypothesis Two: Assessing convergent and divergent validity*

It is hypothesized that the anxiety and avoidance factors of the WRI will converge and diverge with the anxiety and avoidance factors of the other measures of attachment, such that anxiety converges with anxiety and diverges with avoidance, and avoidance converges with avoidance and diverges with anxiety.

*Hypothesis Three: Assessing the acceptability of the WRI*

It is hypothesized that average acceptability ratings for all participants on the WRI, as measured by “ease of use” and “comfort with filling out the survey at work,” will be above average (greater than a rating of 4 on a 7-point scale) and will not differ significantly by age, gender, cultural status, or total number of months of work experience.

*Hypothesis Four: Assessing self-attachment ratings on the WRI in terms of Model of Self and Model of Other*

Individual scores on WRI items will cluster into four groups corresponding to the four quadrants in the two-dimensional attachment space created by the axes of anxiety and avoidance.

## **CHAPTER THREE**

### **Methodology**

#### **Participants**

The study utilizes a set of data collected from a group of 515 students, 55% male and 45% female, enrolled in organizational behavior classes at the University of Texas at Dallas from 2008-2010. All students in the selected business classes were eligible to participate in the study. Students voluntarily participated in the study and received class credit as compensation. The average age of the participants was 24 years ( $SD = 6.4$ ).

#### **Procedure**

Students enrolled in organizational behavior classes at the University of Texas at Dallas were offered the opportunity to complete self-report attachment surveys for class credit. The surveys included four different self-report measures of attachment, including The Workplace Relationships Inventory (WRI), The Experiences in Close Relationships Scale (ECR), The Relationship Structures Questionnaire (RS), and The Attachment Styles Measure (ASM). The WRI also included seven demographic items and three questions eliciting participant feedback about the WRI. The surveys were completed during regular class time. The students were verbally instructed that their participation was voluntary and that the information they provided would be kept confidential. The surveys took

approximately 45 minutes to complete. Surveys were de-identified after the students handed in their surveys. All identifiers have been removed from the surveys.

## **Instruments**

### *Workplace Relationships Inventory*

The purpose of this study is to design and validate a self-report measure of adult attachment style tailored for use in organizational settings. The Workplace Relationships Inventory (WRI) was constructed for this purpose and contains 36-items adapted from the Experiences in Close Relationships (ECR) Scale, a well-validated measure of adult attachment style in romantic contexts that is considered a benchmark by leading researchers in adult attachment (Mikulincer & Shaver, 2007). In developing the WRI, a group of psychologists and graduate students at the University of Texas Southwestern Medical Center at Dallas and the University of Dallas familiar with the adult attachment literature worked together to rewrite the ECR items such that they apply to attachment related behaviors within a workplace setting. For instance, whereas an ECR item states, “I get frustrated when romantic partners are not available when I need them,” the same WRI item is worded, “In close working relationships, I get frustrated when a coworker is not around as much as I would like.” Like the ECR, the WRI

contains 36 items comprised of two scales, with 18 items worded to tap attachment-related anxiety and 18 items worded to tap attachment-related avoidance. Participants are asked to rate, on a 7-point scale, how much they agree or disagree with each statement.

### *Relationship Structures Questionnaire*

The Relationships Structures (RS) Questionnaire (Fraley, Niedenthal, Marks, Brumbaugh, & Vicary, 2006) is a self-report measure of attachment style with respect to a variety of important target relationships. This 40-item measure contains four 10-item scales, comprised of the same 10-items, but which refer to different targets. In this study, the targets are *Supervisor at Work*, a *Close Coworker*, *Close Coworkers in General*, and *Best Friend*. Participants rate, on a 7-point scale, how much they agree or disagree with each statement. Of the 10-items, six are averaged to compute the avoidance score, and four are averaged to compute the anxiety score.

### *Attachment Style Measure*

The Revised Hazan and Shaver (1987) Three-Category Measure of attachment style contains three short paragraphs describing experiences in romantic love relationships. Participants are asked to indicate which paragraph best describes how they feel in romantic relationships. They are also asked to

rate, on a 7-point scale, how well each paragraph describes their general relationship style.

### *Experiences in Close Relationships*

The Experiences in Close Relationships (ECR) Scale, the development of which was described early in this report, contains 36-items, with two 18-item scales tapping attachment-related anxiety and avoidance. The items are statements about experiences in romantic relationships. Participants rate, on a 7-point scale, how much they agree or disagree with each statement.



## **CHAPTER FOUR**

### **Results**

From summer 2008 to spring 2010, 515 students enrolled in organizational behavior classes at the University of Texas at Dallas participated in the current investigation. All students in the selected business classes were eligible to participate in the study. Students voluntarily participated in the study and received class credit as compensation.

#### **Characteristics of the Sample**

Of the 515 students, 93% ( $n = 477$ ) were enrolled as undergraduates and 7% ( $n = 38$ ) were enrolled as graduate, Masters of Business Administration students. Of the 477 undergraduate students surveyed, 8% ( $n = 43$ ) were enrolled in the summer of 2008, 20% ( $n = 104$ ) in the fall of 2008, 38% ( $n = 198$ ) in the spring of 2009, 15% ( $n = 75$ ) in the fall of 2009, 11% ( $n = 57$ ) in the spring of 2010. The 38 (7%) MBA students were enrolled in the spring of 2010.

The ethnic composition of the sample ( $n = 515$ ) consisted of the following: African American 5% ( $n = 24$ ), American Indian .2% ( $n = 1$ ), Asian 25% ( $n = 128$ ), Caucasian 46% ( $n = 235$ ), Hispanic 11% ( $n = 55$ ), Indian 5% ( $n = 28$ ), and Other 8% ( $n = 43$ ). Study participants ranged in age from 17 to 57 years, with a mean age of 24 years ( $SD = 6.25$ ) and were 55% male ( $n = 282$ ) and 45%

female ( $n = 233$ ). Table 1 provides demographic information for the total sample of 515 participants.

As displayed in Table 2, 85% ( $n = 440$ ) of study participants had some work experience. Total work experience ranged from 1 to 456 months ( $M = 70.85$ ,  $SD = 64.71$ ). At the time of the study, 57% ( $n = 296$ ) of participants were employed, with current work experience ranging from less than one month to 279 months ( $M = 29.44$ ,  $SD = 30.86$ ). For currently employed and unemployed participants, the majority 68% ( $n = 345$ ) were primarily hourly workers with the remainder of participants indicating the following primary types of work: Salaried managerial 7% ( $n = 37$ ), salaried supervisory 7% ( $n = 33$ ), salaried non-managerial and non-supervisory 17% ( $n = 88$ ).

### **Analyses of the Hypotheses**

Classical test theory analysis was used to generate item and scale means and standard deviations, item/total correlations, and scale reliabilities. Principal components analysis and parallel analysis were used to define the factor structure of the WRI. The determination of the number of factors to extract was based on the eigenvalue of a real principal component exceeding the eigenvalue of a randomly generated principal component (Horn, 1965; Humphreys & Ilgen, 1969; Humphreys & Montanelli, 1975; Montanelli & Humphreys, 1976). Cattell's (1966) scree test was also used to illustrate the number of factors contributing

most to the variance. The overall Kaiser measure of sampling adequacy (MSA) was .90, ranging from .81 to .94 for individual items, suggesting good to excellent factorability (Kaiser, 1970, 1981). Factor loadings greater than .30 were considered to be significant (Nunnally & Bernstein, 1994). An additional confirmatory factor analysis was used to test the fit of the proposed two dimensional structure of the WRI. The Chi-square goodness-of-fit statistic and fit indexes, CFI and RMSEA, were used to estimate the model fit (Hu & Bentler, 1999). The internal consistency reliability of the WRI factors was measured by Cronbach's alpha. Scale intercorrelations were computed to compare the anxiety and avoidance factors of the WRI with the established attachment scales. Analysis of variance (ANOVA) and correlation analysis with alpha set at .05 were used to test for group differences in regard to the acceptability of the surveys. Factor scores for the sample were plotted to illustrate the distribution of scores in the attachment space.

#### *Hypothesis 1: Determining the Factor Structure of the WRI*

The first hypothesis predicted that the WRI consists of two primary factors, attachment-related anxiety and avoidance. The 36 items of the WRI were analyzed with Principal Components Analysis (PCA). Initially, two factors were extracted corresponding to the proposed anxiety and avoidance dimensions of the WRI. The initial eigenvalues showed that the first factor, Anxiety, explained 21%

of the variance and the second factor, Avoidance, explained 16% of the variance. The third and fourth factors had eigenvalues of just over one, explaining another 9% of the variance.

A Promax (oblique) rotation of the two-factor solution indicated a small correlation of  $-.13$  between factors. This small factor correlation provided support for the two-factor model and suggested retaining a Varimax (orthogonal) rotation. As can be seen in Table 3, the anxiety factor was salient with respect to all anxiety variables. In regard to the avoidance factor, items 14, 28 and 32 cross-loaded on the anxiety factor with magnitudes greater than  $.30$ . Item 26 was expected to load on Factor 2, but was observed on Factor 1. With the exception of Item 26, the WRI items loaded as expected on two factors conceptualized as attachment-related anxiety and avoidance.

A parallel analysis was run to determine the number of factors to retain from the PCA. The parallel analysis suggested four factors (two primary factors and two minor factors). Figure 3 presents the scree plot for the WRI illustrating the cross-over point between the item eigenvalues and randomly generated values; the elbow in the curve of observed values corresponds with the cross over point between the observed and randomly generated values.

Although our model suggested two factors, an additional PCA assuming four factors was run based on the results of the parallel analysis. The four-factor model is presented in Table 4. A Promax rotation showed that the avoidance

factor was not correlated with the other three inter-correlated factors. Inter-factor correlations are listed in Table 5. As in the two-factor solution, Avoidance was not salient with respect to item 26. Additionally, items 11 and 32 on the Avoidance dimension cross-loaded on the additional third and fourth factors. Though Avoidance held together rather well in the four-factor solution, Anxiety broke down into two additional factors. Nonetheless, the major Anxiety factor explained considerably more of the total variance (16%) than the third (5%) and fourth factors (4%).

Although the results dictated four factors, it was useful to look at a two-factor solution, because it was the proposed model. However, based on the results of the exploratory four-factor solution, it was not expected that a two-factor solution would apply. Nonetheless, a planned confirmatory factor analysis specifying two factors was run to test the fit of the proposed model. Results from the CFA indicated lack-of-fit of the hypothesized model. The analysis yielded a Chi-square value of 3959.54 ( $df = 593$ ;  $p < 0.0000$ ), CFI = .74, and RMSEA = .11. Good fit is indicated by a chi-square statistic close to zero and  $p > .05$ , and fit indexes CFI  $> .95$ , and RMSEA  $< .06$  (Hu & Bentler, 1999).

The internal consistency reliability of the WRI was tested using Chronbach's coefficient Alpha. Both the Anxiety and the Avoidance scales of the WRI demonstrated good internal consistency with Alphas of .89 and .88, respectively. There was no difference between the raw and standardized Alpha

coefficients for the two scales. The scale means, standard deviations and raw reliability coefficients for all attachment measures are reported in Table 6.

At the WRI item-level, means ranged from 2.21 ( $SD = 1.31$ ) to 4.84 ( $SD = 1.59$ ). Table 7 presents item means and standard deviations. Item-total correlations ranged from .36 to .66, except for Item 26 (item-total correlation = .08). The likely reason for the .08 correlation was poor item wording. Alpha was not affected by any deleted items. For a complete listing of item-total correlations, see Table 8.

### *Hypothesis 2: Convergent and Divergent Validity of the WRI*

The second hypothesis predicted the anxiety and avoidance factors of the WRI will converge and diverge with the anxiety and avoidance factors of the other measures of attachment, such that anxiety converges with anxiety and diverges with avoidance, and avoidance converges with avoidance and diverges with anxiety. Scale correlations are presented in Table 9. There were significant correlations ( $p < .001$ ) between the WRI avoidance scale and each of the avoidance scales of the comparison attachment measures. The strongest correlations for the WRI avoidance scale were found among the avoidance scales of the Relationship Structures Questionnaire for working relationships, specifically regarding the “Supervisor,” “Close Coworker” and “Coworkers in

General” relationship targets. No significant correlations were found between the WRI avoidance scale and the anxiety scales of the other instruments.

The WRI anxiety scale correlated significantly ( $p < .001$ ) with all of the comparison anxiety scales. The highest correlation ( $r = .43$ ) was found for the ECR anxiety scale. The WRI anxiety scale diverged from the comparison avoidance scales. There was a significant negative correlation ( $r = -.18$ ) between the WRI anxiety scale and the RS avoidance scale in regard to “Coworkers in General.” Overall, the WRI scales demonstrated good convergent and divergent validity with the other attachment scales.

#### *Hypothesis Three: Assessing the acceptability of the WRI*

It was hypothesized that average acceptability ratings for all participants on the WRI, as measured by “ease of use” and “comfort with filling out the survey at work,” will be above average (greater than a rating of 4 on a 7-point scale) and will not differ significantly by age, gender, cultural status, or total number of months of work experience. On a Likert scale of 1 to 7 (very difficult to very easy), participants ( $n = 514$ ) rated the degree to which the WRI was difficult/easy to fill out ( $M = 5.6$ ,  $SD = 1.29$ ), and the degree to which they would feel comfortable filling out the WRI at work ( $M = 5.39$ ,  $SD = 1.46$ ). Taken as indicators of the general acceptability of the survey to participants, these ratings suggest that the WRI is a user friendly survey.

A one-way ANOVA was used to test for acceptability differences among ethnicities. The ethnicity group *American Indian* ( $n = 1$ ) was not included in this analysis due to small sample size. There was a significant effect of ethnicity on “ease of use” at the  $p < .05$  level [ $F(5, 506) = 2.61, p = .02$ ] and “comfort with filling out the survey at work” [ $F(5, 506) = 2.77, p = .02$ ] (Tables 10 & 11).

Tukey post-hoc comparisons of the ethnicity groups indicated that the Caucasian group ( $M = 5.77, 95\% \text{ CI } [5.60, 5.93]$ ) gave significantly higher ratings on “ease of use” than Asians ( $M = 5.35, 95\% \text{ CI } [5.12, 5.58]$ ), and significantly higher ratings on “comfort with filling out the survey at work” ( $M = 5.61, 95\% \text{ CI } [5.44, 5.78]$ ) compared to Asians ( $M = 5.12, 95\% \text{ CI } [4.86, 5.37]$ ) (Tables 12 & 13). A one-way ANOVA was used to test for acceptability differences between genders. No significant differences were detected for “ease of use” [ $F(1, 512) = 2.43, p = .12$ ] (Table 14), or “comfort with filling out the survey at work” [ $F(1, 512) = 3.31, p = .07$ ] (Table 15).

A Pearson product-moment correlation coefficient was computed to assess the relationship between subjects’ total number of years of work experience and acceptability ratings. There was no significant correlation for “ease of use” [ $r = .09, n = 440, p = .06$ ] or “comfort with filling out the survey at work” [ $r = .04, n = 440, p = .47$ ]. Overall there was no association between work experience and acceptability of the surveys.



*Hypothesis 4: Distribution of WRI Factor Scores*

The fourth hypothesis predicted that the individual scores on WRI items will cluster into four groups corresponding to the four quadrants in the two-dimensional attachment space created by the orthogonal axes of anxiety and avoidance. The small correlation of  $-.13$  resulting from the oblique rotation of the two-factor solution indicates that the two factors are orthogonal to each other. Figure 4 presents a bivariate scatterplot of the WRI sample showing the distribution of standardized factor scores in the four areas of the attachment space. Figures 5 and 6 illustrate the relative normality of the distribution of factor scores on both factors.

## **CHAPTER FIVE**

### **Discussion**

In 1990, Hazan and Shaver first demonstrated that adult attachment style is associated with workplace relationship variables. Since that time, relationships between adult attachment style and organizational outcomes such as individual workplace satisfaction (Pines, 2004), group cohesion (Rom & Mikulincer, 2003), and leader/follower relations (Davidovitz, et al., 2007) have clearly demonstrated the role of adult attachment style for understanding organizational behavior. The social and personality psychology literatures have documented the utility of using adult attachment style measures of romantic relationships in conjunction with organizational behavior measures. However, no existing instruments have been designed specifically to measure adult attachment style in workplace relationships. In the social and personality tradition, the present study sought to validate a self-report measure of adult attachment tailored for use in workplace settings with the hope of extending the acceptability and applicability of existing romantic attachment measures using language germane to workplace relationships. The Workplace Relationships Inventory (WRI) was modeled on the Experiences in Close Relationships (ECR) scale (Brennan, Clark & Shaver, 1998) and adapted to target close working relationships. With the aim of validating the WRI, the present study primarily focused on (1) analyzing the factor structure and reliability of the instrument, and (2) comparing the scales of the WRI with

existing measures of adult-attachment style. In addition, this study examined the distribution of WRI scores in the two-dimensional attachment space and the acceptability of the measure to study participants.

### **The Factor Structure of the WRI**

Principal Components Analysis (PCA) provided support for the hypothesized two-factor structure of the WRI. However, a parallel analysis suggested four factors, and an additional PCA was run under this assumption to explore the additional variance. The four-factor solution broke down the variance of the anxiety factor into two additional factors. Although the parallel analysis did not support the proposed model, a planned Confirmatory Factor Analysis (CFA) was conducted to vet the two-factor hypothesis. The CFA verified the lack-of-fit of the model.

At first blush, the four-factor solution appears to provide the best fit for the data. However, the major anxiety factor explained considerably more variance (16%) than the third (5%) and fourth (4%) factors, raising the possibility that the latter may be spurious factors. Bernstein and Teng (1989) noted an inherent problem that arises from item-level factor analysis that may partly explain the additional variance on the anxiety dimension explored in the four-factor solution. Factor analytic techniques are based on the assumption of normality, but the distributions of item-level data are nonnormal given the varying

probabilities of item response levels. Bernstein and Teng (1989) pointed out correlations among variables are affected by similarities in their distributions and item content, and argue that if correlations are partly based on similarities in distributions and those distributions are nonnormal, then spurious factors may be formed on the basis of the error inherent in item-level data. On this basis, the more complex factor structure of the four-factor solution may reflect incidentally skewed distributions due to differing response levels versus veridical differences in item content.

Differing response levels of items on the anxiety and avoidance scales may result because items are not equally informative across the entire trait range. Item difficulty and/or item discrimination values may cluster in a narrow region of the trait range (Fraley, Waller, & Brennan, 2000). Specifically, some items may be better at discriminating individuals on the high end of the trait continuum and less adept at discriminating individuals in the lower range of the continuum. Differential item difficulty levels and differential discrimination may be due to the content of the item or possibly the fact that some items are reverse-keyed whereas others are not. Whereas half of the avoidance items are reverse-keyed, all but one item on the anxiety scale are worded in a trait-positive direction, possibly contributing to the tendency of the anxiety scale to be less discriminating among individuals with varying trait levels. The anxiety scale may be more sensitive to individuals with high anxiety trait levels, and poor at discriminating

people in the lower range of the trait continuum. In fact, investigators have reported that attachment anxiety is somewhat unstable, with highly anxious individuals showing less stability over time than less anxious individuals (Davila, Burge, & Hammen, 1997; Fraley, Waller and Brennan, 2000). This observation highlights the importance of ensuring that an anxiety scale has equal precision at the low and high ends of the continuum.

Studies of self-report measures have demonstrated that adult attachment styles are most accurately conceptualized as regions in the two-dimensional space delineated by anxiety and avoidance (Bartholomew & Horowitz, 1991; Brennan, Clark, & Shaver, 1998; Feeney, Noller, & Hanrahan, 1994; Fraley & Waller, 1998). Continuous ratings pinpoint an individual's location in the attachment space, and thereby an assignment to an attachment classification. Bartholomew and Horowitz (1991) confirmed that each attachment style is characterized by a distinct pattern of interpersonal problems. For instance, individuals classified as preoccupied have associated problems with competitiveness. Although attachment classifications are useful for conceptualizing group associations, important information is contained in an individual's unique location in the attachment space. Bartholomew and Horowitz (1991) point out those individuals who share the same classification may differ by the intensity of their highest ratings or by the pattern of their secondary ratings. Such observations further

illustrate the importance of creating scales with uniformity of information and discrimination.

### *Item-Level Conclusions*

Item 26 clearly presents a content problem. The item was intended to load on the avoidance scale, but loads on the anxiety dimension in both the two- and four-factor solutions. On the ECR avoidance scale, the item is worded, “I want to get close to my partner, but I keep pulling back.” The wording appears to tap the aspect of avoidance having to do with discomfort with closeness. The mirror item on the WRI is worded, “In a working relationship, I find that I don’t get as close as I’d like,” which does not seem to carry the same meaning. Rather, the WRI item has more to do with proximity-seeking. Thus, it seems that the ECR item (26) content was not well translated for the WRI. Perhaps if the item were worded, “I want to work closely with others, but I keep pulling back,” it would measure a similar aspect of avoidance, discomfort with closeness, as its ECR counterpart and would load as an avoidance item.

In the four-factor solution, anxiety items 1, 10, 15, 17, 20, and 24 load on a third factor and seem to represent two separate aspects of the Anxiety factor. The content of a subset of these items (1, 20, and 24) refers to wanting to get closer than others in close working relationships. Another subset, including items 10, 15, and 17 refers to a need for others to show interest, caring or appreciation.

Of the eight total items that load on this third factor, five of the items (1, 10, 17, 20 and 24) have the lowest means of all the 36 items on the WRI. These five items are more positively skewed, with low ratings on the 7-point likert scale, compared to the more closely normal distributions of the items that load on the major anxiety factor. Statistically, these five items form a third factor. However, the third factor items also represent subscales of anxiety comprised of need for approval and need for closeness that are less frequently endorsed compared to the other anxiety items.

Fraley, Waller and Brennan (2000) performed an item response theory (IRT) analysis of the same item pool used to construct the ECR (Brennan et al., 1998). In their IRT analysis the investigators found that items on the anxiety and avoidance scales showed a low degree of uniformity of information and ability to discriminate. The anxiety scale as a whole did not tap the low end of the anxiety dimension with good precision. Notably, items on the anxiety scale that tapped the low end of the anxiety dimension, referred to need for closeness and need for approval and fell in the low range of precision.

Brennan, Clark, and Shaver (1998) clearly illustrated the commonality among many attachment-related constructs in relation to the overriding factors, anxiety and avoidance. In developing the ECR, Brennan and colleagues (1998) pooled 482 (reduced to 323 non-redundant) items from the existing literature on self-report attachment measures designed to assess 60 differently named

attachment-related constructs. Correlations among the subscales suggested the existence of independent underlying factors. Factor analysis of the 60 subscale scores produced two independent factors, anxiety and avoidance. Given the strong correspondence between the items of the WRI and ECR, it is expected both instruments are comprised of similar subscales which fall out as components in exploratory factor analysis. Indeed, Brennan and associates (1998) reported that the subscales need for approval, proximity-seeking and desire for merger loaded on the major anxiety factor. These subscales are synonymous with the third factor subscales of the present investigation. Thus, it is likely that the third factor in the present investigation represents special cases at the low end of the anxiety continuum. The fact that these items for a third factor is probably an artifact of item-level variability not accounted for by classical test theory. Nonetheless, in the present study more emphasis is placed on the two higher-order factors, which explain the most variance in the proposed model.

In the four factor solution, avoidance items 11 and 32 cross load on the third factor and the major anxiety factor, respectively. The mean of item 11 ( $M = 2.93$ ) is located among the four avoidance items (32, 6, 12, & 19) with the lowest means on the scale. The content of these positively skewed items refers to discomfort with closeness. Interestingly, the content of three of the anxiety items (1, 20, & 24) with the lowest means refers to the need for closeness. The items constituting this cluster are endorsed infrequently. Item 32, which loads on the



major anxiety factor, refers to nervousness in close working relationships, perhaps a special case of discomfort characterized by conscious anxiety, which may help explain the correlation with the major anxiety factor.

Item 10 on the third factor also refers to a need for others to show interest, and indicates upset or anger in response to a lack of interest shown by a close coworker. Item 10 also loads on the fourth anxiety factor and shares common content with the other items which load on that factor. These fourth factor items, 22, 23, and 27 refer to frustration or resentment (similar to the upset/anger in item 10) in regard to the availability of a coworker. The commonalities in item content among the third and fourth factors represent subscales of the superordinate anxiety factor.

In summary, although the parallel analysis suggested a problem, there is much to recommend the hypothesized two-factor model. First, with the exception of item 26, all of the other WRI items loaded as expected on two primary factors in the two-factor solution. Second, no correlation was found between the avoidance and anxiety factors. Third, in the four-factor solution, the anxiety and avoidance factors explained considerably more of the variance than the third and fourth factors. Finally, items on these additional factors appear to represent subscales on the anxiety continuum whose items may be infrequently endorsed and/or have a lesser power of discrimination. One possible explanation for the heterogeneity of the anxiety items is that there is only one reverse-keyed item on

the scale, which may make the entire scale vulnerable to acquiescence response bias. In light of these observations, the three correlated anxiety factors from the four-factor solution apparently arose from statistical considerations. From a conceptual level, two factors are reasonable.

In anticipation of future studies using the WRI, it is suggested that item 26 is reworded as described above, thereby retaining 18 items on each scale. Additionally, reverse-keying half of the anxiety items may improve item uniformity at both ends of the anxiety continuum. The full scope of the attachment-related anxiety and avoidance constructs remains unclear. The focus of the present investigation was to build upon the comprehensive work of Brennan, Clark and Shaver (1998) in their construction of the ECR. Far from original, the present study sought to retain the subscales of the ECR in the rewording of items to apply to the workplace. It is beyond the scope of the current investigation to explore further the full range of attachment-related experiences which comprise the two main scales. Nonetheless, the proposed revisions to the WRI may help overcome the present statistically-related problems for future studies. Based on the results of this study, the WRI shows merit as a self-report measure of adult attachment for the workplace and generally appears to consist of two primary scales, anxiety and avoidance.

Overall, the factors have good internal consistency and show good convergent and divergent validity with the anxiety and avoidance factors of the

self-report measures used for comparison. The WRI avoidance scale correlated more strongly with the RS scales referring to workplace relationship targets (e.g., Close Coworker) than the other comparison avoidance scales. This result is highlighted by the weaker (yet significant) correlation between the WRI avoidance scale and the RS avoidance scale referring to a ‘best friend.’ Since all of the RS items are worded alike, whether they refer to working relationships or a friendship, the difference in correlations between the WRI avoidance scale and the two different types of RS targets is theoretically attributable to the type of target. This finding may suggest that the wording of the WRI avoidance scale is tapping as intended into mental representations of workplace relationships. This finding did not hold for the WRI anxiety scale, which correlated most strongly with the ECR anxiety scale.

### **WRI Acceptability**

A major, overarching aim of this study was to design a self-report measure of adult attachment style in regard to close working relationships that is acceptable and applicable to a workplace environment. Given that the WRI is modeled on ECR items referring to experiences in romantic relationships, there was a concern that item content, though retooled, might not apply to workplace relationships or might not be acceptable to workers. On the whole, the results suggested that the WRI was acceptable. Although the WRI is a bit more

acceptable to Caucasians than Asians, the reasons for this difference are unclear and the difference in ratings is rather unimportant, given that both groups provided above average ratings for “ease of use” and “comfort with filling out the survey at work.” Additionally, this is a weak test of acceptability, given that the surveys were not administered in a workplace environment.

### **Distribution of WRI Factor Scores**

Support was provided for the proposal that patterns of scores on the anxiety and avoidance factors of the WRI will cluster in four areas consistent with Bartholomew’s (1990) conceptualization of internal working model of positive and negative self and other. Firstly, the lack of correlation between the two major factors, anxiety and avoidance, is consistent with the two dimensions of model of self and model of other. Secondly, the distribution of scores, both positive and negative, on the two dimensions that define the two-dimensional attachment space, model of self and model of other, is relatively normal. Taken together, the relatively symmetrical distribution of high and low scores in the four quadrants is consistent with Bartholomew’s re-conceptualization of the two-dimensional attachment space. In a sample of 76 college students, Bartholomew and Horowitz (1991) found that 57% were secure, 18% dismissing, 10% preoccupied, and 15% fearful. Given these observed unequal proportions, it was expected that WRI sample scores would also be unevenly distributed. The essential normality of the

distribution of scores on the two axes possibly reflects that the scores on each scale are the sum of a modestly large number of items.

### **Limitations**

The participant sample consisting of students enrolled in organizational behavior classes limits the generalizability of the study to workplace relationships. Just over half (57%) of the participants were currently employed at the time of the study. The proportion of the currently unemployed students who had prior work experience is not known. Nonetheless, the fact that almost half of the sample was unemployed at the time of completing the surveys limits the interpretability of the results. Additionally, it is unclear to what extent type of employment (e.g., hourly wage versus salaried) played a role in survey responses. Given that the WRI is a measure of experiences in workplace relationships, planned studies will utilize the WRI in a workplace setting with a focus on employment variables. Interpretability is also limited in regard to the observation that Caucasians provided slightly higher acceptability ratings of the WRI than Asians. It remains unclear to what extent differences in language or Asian cultural subgroups may have played a role in the observed differences.

The present study is primarily concerned with reporting on the psychometric properties of the WRI and the convergent/divergent validity of the measure in comparison with other self-report measures of attachment. Planned

studies will investigate predictions of theoretically appropriate target variables in a workplace environment based on WRI attachment styles. Although WRI anxiety and avoidance items were randomized in the survey, only one version of the form was administered to participants. Planned studies will administer alternate, randomized forms to control for order effects.

Finally, factor analysis of item level data suggested multiple anxiety factors. This result likely arose from the heterogeneity of item-level distributions. Planned studies will consider using a model such as item response theory to more accurately represent the relation between an individual's item response and an underlying trait.

### **General Conclusions**

The current examination reported on the factor structure of the WRI and item-level idiosyncrasies that are presumed to account for the variance of a four-factor solution. Although the data did not conform to the proposed two-factor model, there may have been limitations inherent in the modeling approach which led to misinterpretations of the relationship between items and latent factors. The two additional factors produced in the four-factor solution contain elements shown by existing studies to rest on the continuum of the higher-order anxiety dimension. Despite modeling limitations, it may also be that the third and fourth factor items of the current study do not discriminate precisely between individuals

at the lower end of the anxiety scale. It appears that flaws in uniformity of item content and power to discriminate between individuals with varying levels of a trait may account for the additional variance of the four-factor solution.

Despite the additional variance reported in the present study, the WRI shows promise as a measure of attachment in workplace relationships. The observed four-factor structure is a close approximation of the proposed two-factor model. Improvements to the content of certain items may further enhance the uniformity and power of discrimination of the scales at the lower ends. Additionally, the scales show good internal consistency reliability and convergent and divergent validity compared to existing measures of attachment. The acceptability ratings of the current study suggest that the WRI may be well received in a workplace setting. Planned studies will test the construct validity of the WRI in regard to theoretically consistent workplace variables.

Figure 1

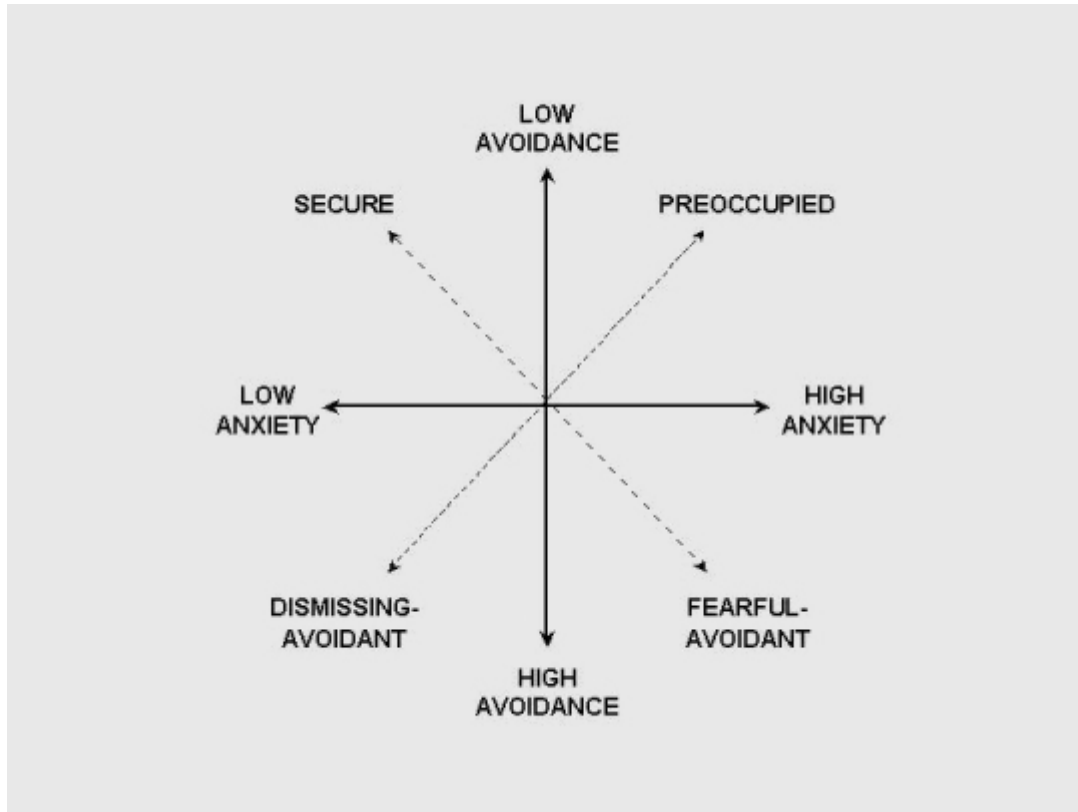
*Two-Dimensional Attachment Space*



Figure 2

*Two-Dimensional Attachment Space Conceptualized as Model of Self and Other*

		<b>Model of Self:</b>	
		Positive	Negative
<b>Model of Other:</b>	Positive	<b>Secure</b>	<b>Preoccupied</b>
	Negative	<b>Dismissing</b>	<b>Fearful</b>

Figure 3

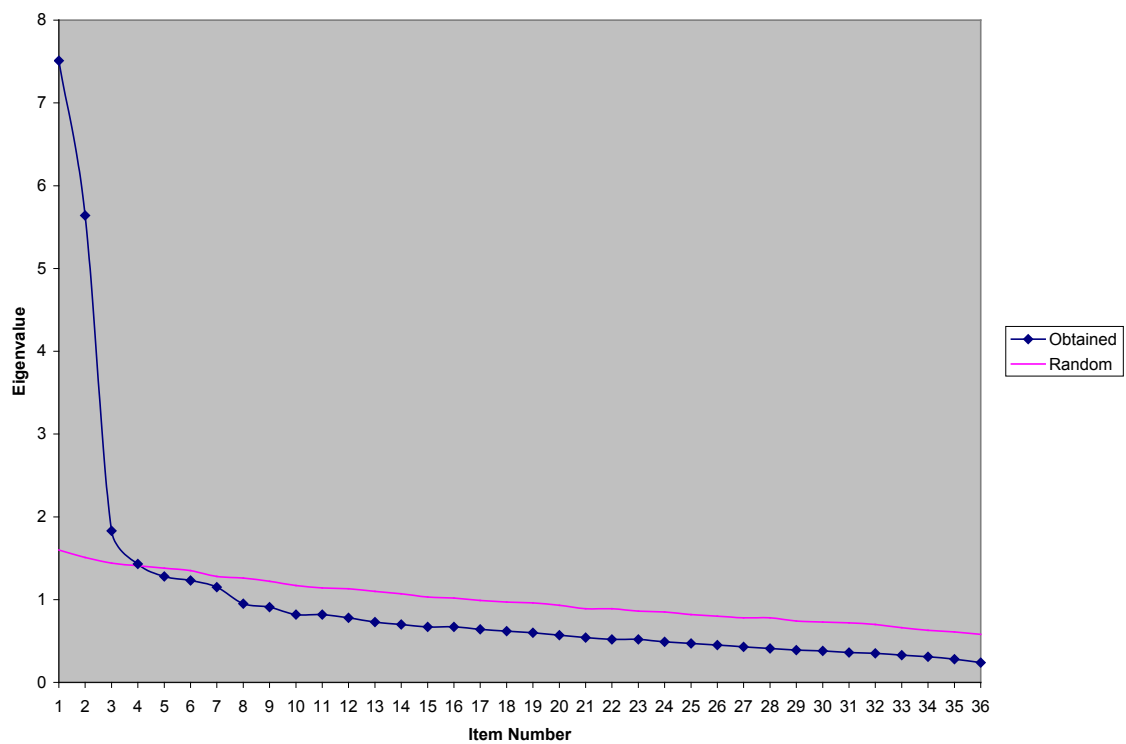
*Scree Plot of the WRI*

Figure 4

*Bivariate Scatterplot of WRI Sample ( $N = 509$ )*

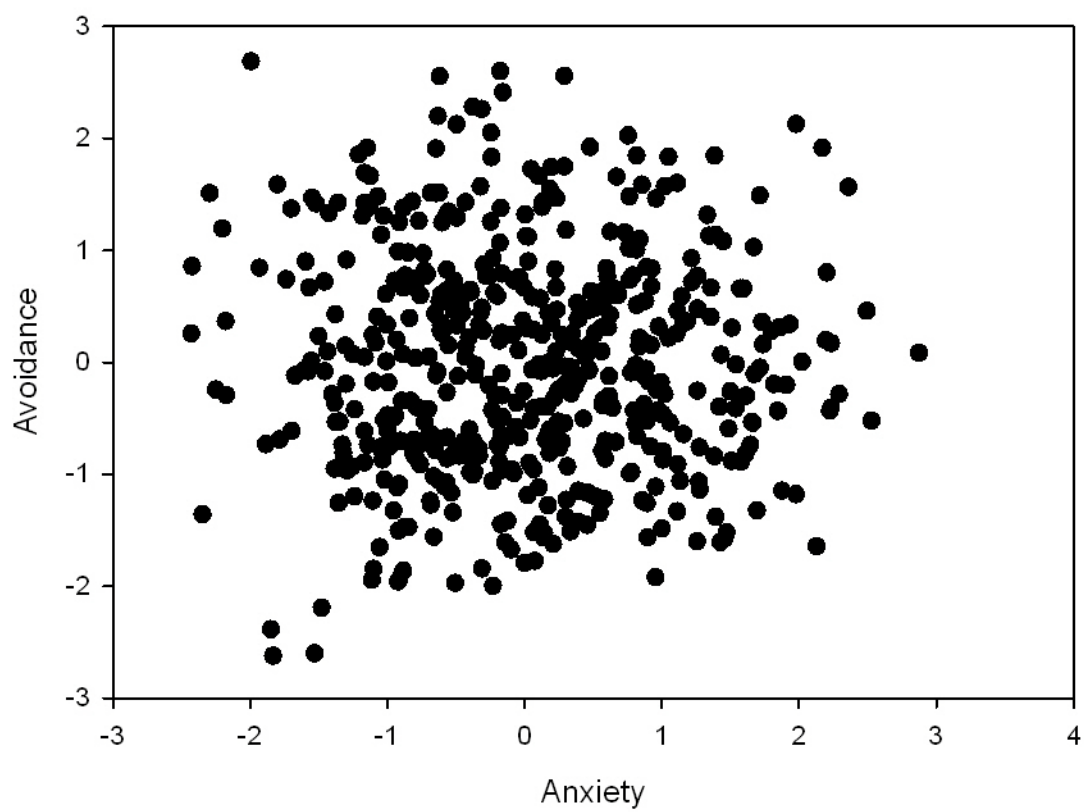


Figure 5

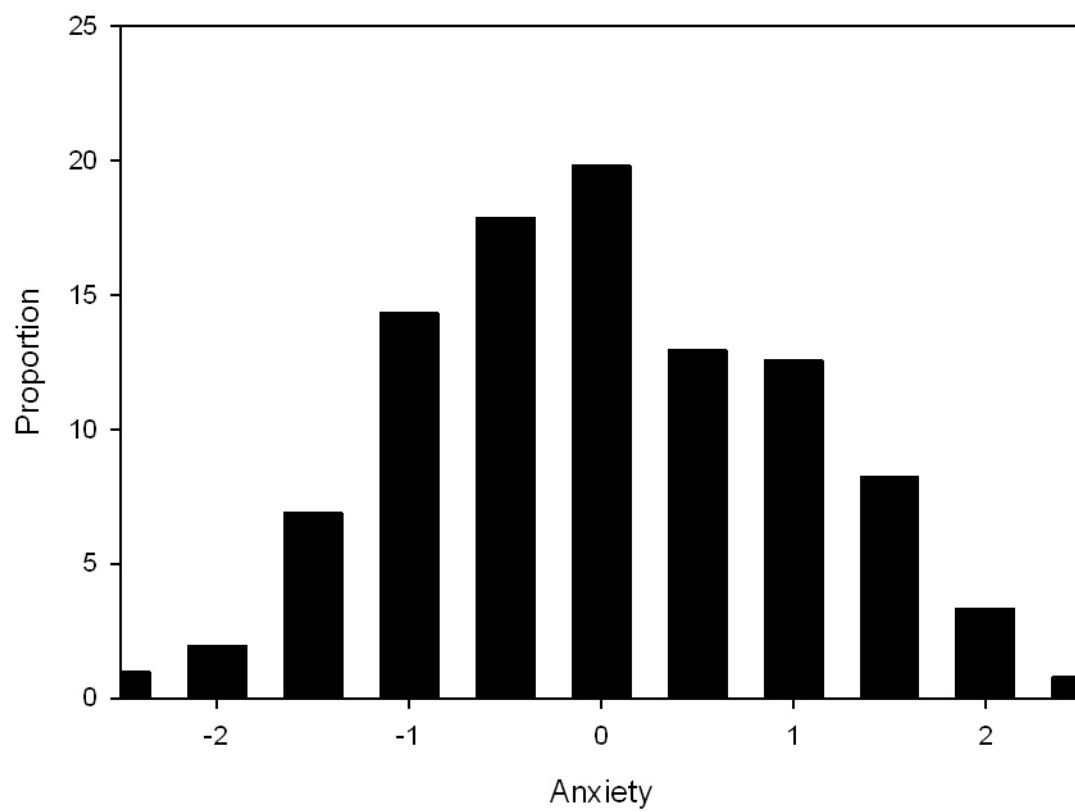
*Distribution of Anxiety Factor Scores*

Figure 6

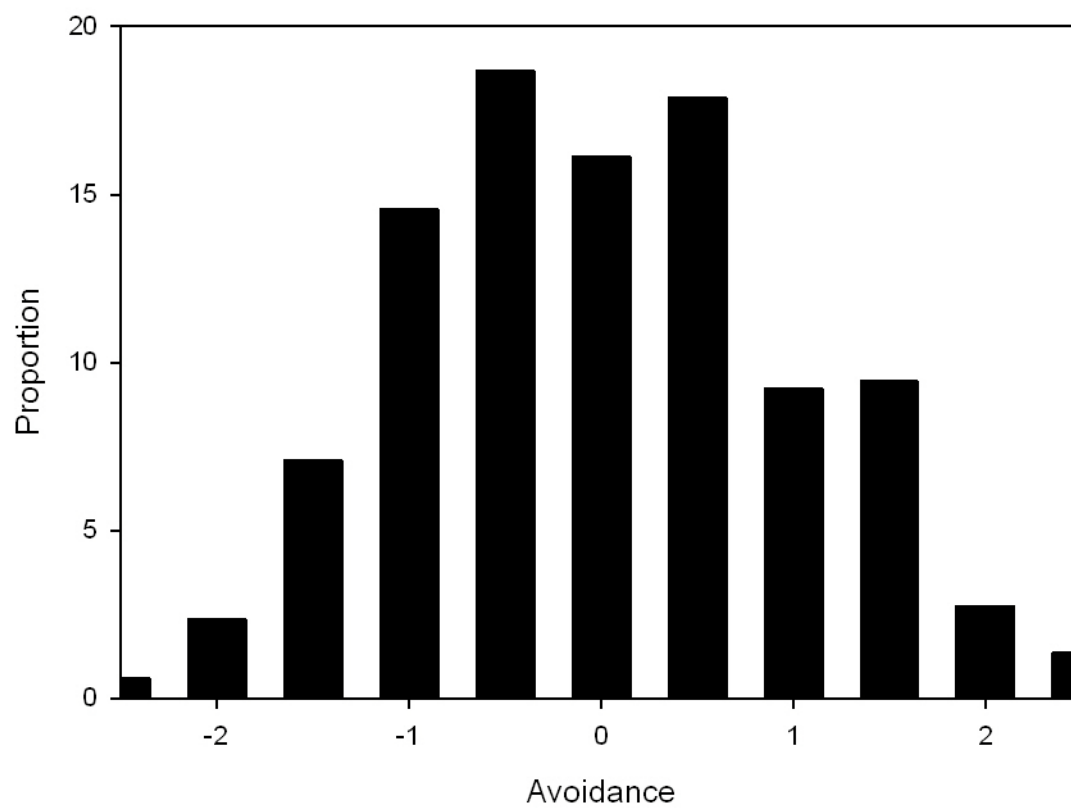
*Distribution of Avoidance Factor Scores*

Table 1

*Demographic Characteristics of the Sample (n = 515)*

Variable	All Subjects	
	M (SD)	Range
Age ( <i>n</i> = 508)	24.10 (6.25)	17 to 57
	<i>n</i>	%
Gender ( <i>n</i> = 515)		
Male	282	54.76
Female	233	45.24
Ethnicity ( <i>n</i> = 514)		
African American	24	4.67
American Indian	1	0.19
Asian	128	24.90
Caucasian	235	45.72
Hispanic	55	10.70
Indian	28	5.45
Other	43	8.37
Semester of Enrollment ( <i>n</i> = 515)		
Summer 2008	43	8.35
Fall 2008	104	20.19
Spring 2009	198	38.45
Fall 2009	75	14.56
Spring 2010	57	11.07
Spring 2010 (MBA)	38	7.38

Table 2

*Employment Characteristics of the Sample (n = 515)*

Variable	All Subjects	
	M (SD)	Range
Work Experience (n = 515)		
Currently Employed (n = 296)	29.44 (30.86)	<1 to 279 Months
Total Work Experience (n = 440)	70.85 (64.71)	1 to 456 Months
	<i>n</i>	%
Currently Unemployed	219	42.52
Type of Work (n = 503)		
Salaried Managerial	37	7.34
Salaried Supervisory	33	6.55
Salaried Non-managerial & Non-supervisory	88	17.46
Hourly	345	68.45

Table 3

*Factor Loadings from a Two-Factor Solution*

Item	Anxiety	Avoidance	$h^2$
2	-.19	<b>.57</b>	.36
3	-.23	<b>.56</b>	.36
4	-.22	<b>.44</b>	.25
5	-.04	<b>.64</b>	.42
6	.09	<b>.59</b>	.36
7	-.22	<b>.59</b>	.40
8	-.06	<b>.51</b>	.27
9	-.09	<b>.72</b>	.53
11	.17	<b>.63</b>	.43
12	.10	<b>.75</b>	.58
13	-.01	<b>.70</b>	.49
14	<b>-.32</b>	<b>.63</b>	.50
18	.05	<b>.51</b>	.26
19	-.01	<b>.71</b>	.51
25	.16	<b>.42</b>	.20
26	<b>.50</b>	.16	.27
28	<b>-.43</b>	<b>.53</b>	.47
32	<b>.32</b>	<b>.54</b>	.39
1	<b>.42</b>	-.14	.20
10	<b>.53</b>	-.01	.28
15	<b>.60</b>	-.11	.37
16	<b>.48</b>	-.09	.24
17	<b>.55</b>	-.08	.31
20	<b>.49</b>	.01	.24
21	<b>.59</b>	-.04	.35
22	<b>.55</b>	.03	.31
23	<b>.58</b>	.06	.34
24	<b>.52</b>	.08	.28
27	<b>.60</b>	.02	.37
29	<b>.55</b>	-.15	.32
30	<b>.68</b>	-.12	.48
31	<b>.71</b>	-.10	.51
33	<b>.64</b>	-.04	.42
34	<b>.68</b>	-.02	.46
35	<b>.54</b>	.04	.30
36	<b>.59</b>	-.06	.36

Note. Extraction: Principal Components Analysis

Rotation: Varimax

Values in bold indicate item loads on factor. Values in bold and italics indicate factor could load on more than one factor (loading &gt;0.30 criterion)

 $h^2$  = Final communality estimate



Table 4

*Factor Loadings from a Four-Factor Solution*

Item	Avoidance	Anxiety	Factor 3	Factor 4	$h^2$
2	<b>.56</b>	.07	-.24	-.04	.39
3	<b>.55</b>	.02	-.22	-.07	.39
4	<b>.45</b>	.18	-.27	-.21	.34
5	<b>.64</b>	-.05	.00	.05	.42
6	<b>.62</b>	.12	.15	-.12	.39
7	<b>.57</b>	.00	-.29	.04	.43
8	<b>.52</b>	.06	-.06	-.04	.27
9	<b>.70</b>	-.10	-.11	.18	.55
11	<b>.65</b>	-.14	<b>.40</b>	.06	.54
12	<b>.76</b>	-.09	.25	.06	.62
13	<b>.70</b>	-.10	.06	.10	.50
14	<b>.60</b>	-.14	-.24	.02	.51
18	<b>.50</b>	-.09	.06	.17	.29
19	<b>.74</b>	.15	.09	-.23	.57
25	<b>.42</b>	.07	.00	.18	.21
26	.18	.09	<b>.30</b>	<b>.30</b>	.31
28	<b>.50</b>	-.24	-.20	-.08	.47
32	<b>.58</b>	<b>.34</b>	.16	-.07	.44
1	-.09	.00	<b>.71</b>	-.14	.46
10	.01	.04	<b>.37</b>	<b>.32</b>	.35
15	-.06	.24	<b>.44</b>	.10	.41
16	-.03	<b>.50</b>	.21	-.13	.32
17	-.03	.12	<b>.56</b>	.05	.42
20	.06	-.01	<b>.76</b>	-.08	.53
21	.00	<b>.63</b>	-.11	.19	.47
22	.01	.12	-.10	<b>.75</b>	.60
23	.04	.07	-.01	<b>.76</b>	.32
24	.10	.01	<b>.47</b>	.26	.38
27	.00	.05	.05	<b>.75</b>	.63
29	-.12	<b>.31</b>	.15	.24	.33
30	-.07	<b>.52</b>	.23	.10	.50
31	-.04	<b>.62</b>	.18	.07	.56
33	.00	<b>.64</b>	-.03	.18	.51
34	.04	<b>.86</b>	-.12	.07	.70
35	.10	<b>.83</b>	-.10	-.11	.57
36	.00	<b>.57</b>	.15	.01	.41

Note. Extraction: Principal Component Analysis

Rotation: Promax

Values in bold indicate item loads on factor. Values in bold and italics indicate factor could load on more than one factor (loading &gt;0.30 criterion)

 $h^2$  = Final communality estimate

Table 5

*Inter-Factor Correlations of Four-Factor Solution*

	Avoidance	Anxiety	Factor 3	Factor4
Avoidance	1.00			
Anxiety	-.13	1.00		
Factor 3	-.10	.39	1.00	
Factor 4	-.04	.38	.38	1.00

Note. Extraction: Principal Component Analysis  
 Rotation: Promax

Table 6

<i>Means, Standard Deviations, and Reliability Coefficients of the Survey Scales</i>				
Survey Scales	N	Mean	SD	Alpha*
Workplace Relationships Inventory				
Anxiety	515	3.16	0.89	.89
Avoidance	515	3.58	0.85	.88
Experiences in Close Relationships				
Anxiety	514	3.41	1.07	.91
Avoidance	515	2.84	1.03	.93
RS Relationship Structures				
Questionnaire				
<i>Supervisor</i>				
Anxiety	471	2.76	1.22	.78
Avoidance	471	3.74	1.35	.88
<i>Close Coworker</i>				
Anxiety	472	2.46	1.08	.78
Avoidance	472	2.96	1.14	.88
<i>Coworker in General</i>				
Anxiety	471	2.91	1.14	.78
Avoidance	471	4.06	1.14	.84
<i>Best Friend</i>				
Anxiety	515	2.06	1.19	.83
Avoidance	515	1.84	0.89	.86
Attachment Styles Measure				
Anxiety	484	2.79	1.64	
Avoidance	488	3.61	1.88	
Secure	502	5.20	1.61	

\*Raw Values

Table 7

*WRI Item Means and Standard Deviations (n = 509)*

Avoidance Scale			Anxiety Scale		
Item	Mean	Standard Deviation	Item	Mean	Standard Deviation
2	3.89	1.62	1	2.21	1.31
3	3.58	1.66	10	2.45	1.36
4	4.84	1.59	15	3.13	1.58
5	3.93	1.55	16	2.88	1.67
6	2.81	1.22	17	2.40	1.33
7	3.15	1.54	20	2.51	1.22
8	3.25	1.50	21	3.70	1.69
9	3.86	1.51	22	3.97	1.62
11	2.93	1.29	23	3.62	1.65
12	2.81	1.30	24	2.61	1.24
13	3.84	1.60	27	3.24	1.54
14	3.94	1.61	29	4.04	1.55
18	4.26	1.59	30	2.96	1.50
19	3.09	1.31	31	3.26	1.59
25	3.64	1.59	33	3.57	1.61
26	3.18	1.39	34	3.75	1.77
28	4.66	1.59	35	3.67	1.69
32	2.69	1.39	36	2.90	1.38

Table 8

*WRI Item-Total Correlations*

Avoidance Scale			Anxiety Scale		
Deleted Variable	Correlation with Total	Alpha	Deleted Variable	Correlation with Total	Alpha
2	.51	.87	1	.37	.88
3	.51	.87	10	.46	.88
4	.40	.87	15	.53	.88
5	.57	.87	16	.44	.88
6	.50	.87	17	.50	.88
7	.54	.87	20	.42	.88
8	.46	.87	21	.54	.88
9	.66	.86	22	.50	.88
11	.53	.87	23	.52	.88
12	.66	.86	24	.45	.88
13	.63	.86	27	.53	.88
14	.59	.87	29	.48	.88
18	.45	.87	30	.63	.88
19	.63	.87	31	.65	.87
25	.36	.88	33	.58	.88
26	.08	.88	34	.64	.87
28	.49	.87	35	.50	.88
32	.43	.87	36	.53	.88

Note. Raw values are reported

Table 9

*Attachment Survey Scale Correlations*

	Workplace Relationships Inventory (WRI)		Experiences in Close Relationships (ECR)		Relationship Structures Questionnaire (RS)							
					Supervisor		Close Coworker		General Coworker		Best Friend	
	Avoid	Anxiety	Avoid	Anxiety	Avoid	Anxiety	Avoid	Anxiety	Avoid	Anxiety	Avoid	Anxiety
WRI	1.00											
Avoid												
WRI	-.13	1.00										
Anxiety												
ECR	.17*	.12	1.00									
Avoid												
ECR	-.06	.43**	.20**	1.00								
Anxiety												
Super	.23**	-.04	.18**	.01	1.00							
Avoid												
Super	-.01	.27**	.24**	.28**	.46**	1.00						
Anxiety												
CC	.36**	-.10	.20**	-.10	.32**	.06	1.00					
Avoid												
CC	.11	.19**	.25**	.23**	.11	.46**	.32**	1.00				
Anxiety												
GC	.35**	-.18*	.09	-.13	.37**	.03	.40**	.15	1.00			
Avoid												
GC	.04	.25**	.24**	.31**	.14	.51**	.08	.54**	.24**	1.00		
Anxiety												
BF	.16*	-.02	.33**	.11	.24**	.11	.44**	.24**	.22**	.09	1.00	
Avoid												
BF	.05	.23**	.29**	.42**	.13	.32**	.15*	.45**	.10	.32**	.41**	1.00
Anxiety												

\* Correlation is &lt;.001

\*\* Correlation is &lt;.0001

Table 10

*Analysis of Variance among Ethnicities and Rating of Acceptability as Measured by Ease of Using WRI*

Source	<i>df</i>	<i>F</i>	$\eta^2$	<i>p</i>
Ethnicity	5	4.26	.03	.02*
Error	506	(1.63)		

Note. Value enclosed in parentheses represents mean square error.

\* $p < .05$

Table 11

*Analysis of Variance among Ethnicities and Rating of Acceptability as Measured by Comfort with Filling out the WRI at Work*

Source	<i>df</i>	<i>F</i>	$\eta^2$	<i>p</i>
Ethnicity	5	5.87	.03	.02*
Error	506	(2.11)		

Note. Value enclosed in parentheses represents mean square error.

\* $p < .05$



Table 12

*Tukey HSD Comparison for Ethnicity and Rating of Acceptability as Measured by Ease of Using WRI*

(I) Ethnicity	(J) Ethnicity	Mean Diff (I-J)	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1	3	.32	.28	-.50	1.13
	4	-.10	.27	-.88	.68
	5	.06	.31	-.84	.95
	6	.56	.36	-.46	1.58
	7	.04	.33	-.89	.97
3	1	-.32	.28	-1.13	.50
	4	-.41*	.14	-.82	-.01
	5	-.26	.21	-.85	.33
	6	.24	.27	-.52	1.01
	7	-.28	.23	-.92	.37
4	1	.10	.27	-.68	.88
	3	.41*	.14	.01	.82
	5	.16	.19	-.40	.71
	6	.66	.26	-.07	1.39
	7	.14	.21	-.47	.74
5	1	-.06	.31	-.95	.84
	3	.26	.21	-.33	.85
	4	-.16	.19	-.71	.40
	6	.50	.30	-.35	1.36
	7	-.02	.26	-.76	.73
6	1	-.56	.36	-1.58	.46
	3	-.24	.27	-1.01	.52
	4	-.66	.26	-1.39	.07
	5	-.50	.30	-1.36	.35
	7	-.52	.31	-1.41	.37
7	1	-.04	.33	-.97	.89
	3	.28	.23	-.37	.92
	4	-.14	.21	-.74	.47
	5	.02	.26	-.73	.76
	6	.52	.31	-.37	1.41

\* $p < .05$

Table 13

*Tukey HSD Comparison for Ethnicity and Rating of Acceptability as Measured by Comfort with Filling out the WRI at Work*

(I) Ethnicity	(J) Ethnicity	Mean Diff (I-J)	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1	3	.47	.32	-.46	1.39
	4	-.03	.31	-.92	.87
	5	.19	.36	-.83	1.22
	6	.69	.41	-.47	1.85
	7	.33	.37	-.73	1.39
3	1	-.47	.32	-1.39	.46
	4	-.49*	.16	-.95	-.03
	5	-.27	.24	-.95	.40
	6	.22	.30	-.64	1.09
	7	-.14	.26	-.87	.59
4	1	.03	.31	-.87	.92
	3	.49*	.16	.03	.95
	5	.22	.22	-.41	.85
	6	.72	.29	-.12	1.55
	7	.35	.24	-.34	1.04
5	1	-.19	.36	-1.22	.83
	3	.27	.24	-.40	.95
	4	-.22	.22	-.85	.41
	6	.50	.34	-.47	1.47
	7	.13	.30	-.72	.98
6	1	-.69	.41	-1.85	.47
	3	-.22	.30	-1.09	.64
	4	-.72	.29	-1.55	.12
	5	-.50	.34	-1.47	.47
	7	-.36	.35	-1.37	.65
7	1	-.33	.37	-1.39	.73
	3	.14	.26	-.59	.87
	4	-.35	.24	-1.04	.34
	5	-.13	.30	-.98	.72
	6	.36	.35	-.65	1.37

\* $p < .05$

Table 14

*Analysis of Variance between Gender and Rating of Acceptability as Measured by Ease of Using WRI*

Source	<i>df</i>	<i>F</i>	$\eta^2$	<i>p</i>
Gender	1	2.43	.005	.12
Error	512	(1.66)		

Note. Value enclosed in parentheses represents mean square error.

Table 15

*Analysis of Variance between Gender and Rating of Acceptability as Measured by Comfort with Filling out the WRI at Work*

Source	df	F	$\eta^2$	<i>p</i>
Gender	1	3.31	.006	.07
Error	512	(2.14)		

Note. Value enclosed in parentheses represents mean square error.

## APPENDIX

### WORKPLACE RELATIONSHIPS INVENTORY

The following statements concern how you feel in close working relationships. We are interested in how you generally experience these relationships, not just in what is happening in a current working relationship with a particular coworker. Respond to each statement by indicating how much you agree or disagree with it. Write the number in the space provided, using the following rating scale:

1	2	3	4	5	6	7
Disagree Strongly	Disagree	Disagree slightly	Neutral/ Mixed	Agree slightly	Agree	Agree strongly

- \_\_\_ 1. I often get too close in working relationships and sometimes it makes my coworkers uncomfortable.
- \_\_\_ 2. I feel comfortable sharing my private thoughts and feelings in a close working relationship.
- \_\_\_ 3. In times of need, it helps to turn to someone I work closely with.
- \_\_\_ 4. In a close working relationship, I don't hold anything back.
- \_\_\_ 5. I prefer not to be too close to coworkers.
- \_\_\_ 6. I find it relatively easy to work in a close working relationship.
- \_\_\_ 7. I don't mind asking for comfort, advice, or help from people I work closely with.
- \_\_\_ 8. I feel comfortable depending on people I work closely with.
- \_\_\_ 9. I don't feel comfortable opening up in close working relationships.
- \_\_\_ 10. If I can't get a coworker to show interest in me and what I am doing, I get upset or angry.
- \_\_\_ 11. When I find myself in a close working relationship, I start to pull away.
- \_\_\_ 12. I don't feel comfortable in a close working relationship.

1	2	3	4	5	6	7
Disagree strongly	Disagree	Disagree slightly	Neutral/ Mixed	Agree slightly	Agree	Agree Strongly

- \_\_\_ 13. I try to avoid getting too close in a working relationship.
- \_\_\_ 14. I usually discuss my problems and concerns with the person I work closely with.
- \_\_\_ 15. I worry that I care more about the people I work with than they care about me.
- \_\_\_ 16. I worry about working alone.
- \_\_\_ 17. Sometimes I feel that I pressure coworkers to show appreciation and loyalty to me.
- \_\_\_ 18. In a close working relationship, I prefer not to show how I feel deep down.
- \_\_\_ 19. I am very comfortable in close working relationships.
- \_\_\_ 20. My enthusiasm for working closely with others sometimes makes them withdraw.
- \_\_\_ 21. When coworkers disapprove of me, I feel really bad about myself.
- \_\_\_ 22. In working relationships, I get frustrated if coworkers are not available when I need them.
- \_\_\_ 23. I resent it when a coworker that I depend on is not available.
- \_\_\_ 24. I find that most of my coworkers don't want to work as closely with me as I would like.
- \_\_\_ 25. I find it difficult to allow myself to depend on people I work closely with.
- \_\_\_ 26. In a working relationship, I find that I don't get as close as I'd like.

1	2	3	4	5	6	7
Disagree strongly	Disagree	Disagree slightly	Neutral/ Mixed	Agree slightly	Agree	Agree strongly

- \_\_\_ 27. In a close working relationship, I get frustrated when a coworker is not around as much as I would like.
- \_\_\_ 28. I turn to a coworker for many things, including comfort and reassurance.
- \_\_\_ 29. In close working relationships, I often wish that my coworkers would appreciate me as much as I appreciate them.
- \_\_\_ 30. I feel somewhat anxious and insecure when I'm not involved in a close working relationship.
- \_\_\_ 31. I worry a fair amount about a close working relationship not working out.
- \_\_\_ 32. Close working relationships make me nervous.
- \_\_\_ 33. I need reassurance that I am valued in a close working relationship.
- \_\_\_ 34. I worry about being rejected by people I work with.
- \_\_\_ 35. I do not often worry about being rejected by people I work closely with.
- \_\_\_ 36. I worry a lot about my close working relationships.

**Please tell us about you:**

- 1) Indicate your age in years: \_\_\_\_\_
- 2) Gender (Circle One):
  - a. Male
  - b. Female
- 3) Are you currently employed (Circle One)?
  - a. Yes (Please answer Question #4)
  - b. No (Move on to Question #5)

- 4) How long have you worked for your current employer? Years \_\_\_\_\_  
Months \_\_\_\_\_
- 5) Please indicate years and months of total work experience: Years \_\_\_\_\_  
Months \_\_\_\_\_
- 6) Please choose your primary type of work (Circle One):
- a. Salaried managerial
  - b. Salaried supervisory
  - c. Salaried non-managerial and non-supervisory
  - d. Hourly
- 7) Please choose the one that best describes your ethnicity (Circle One):
- a. African American
  - b. American Indian
  - c. Asian
  - d. Caucasian
  - e. Hispanic
  - f. Indian
  - g. Other: \_\_\_\_\_

- 8) How difficult/easy was it to fill out this questionnaire? (Circle One)

1	2	3	4	5	6	7
Very difficult	Difficult	Slightly difficult	Neutral/ Mixed	Slightly easy	Easy	Very easy

- 9) I would feel comfortable filling out this questionnaire at work (Circle One):

1	2	3	4	5	6	7
Disagree strongly	Disagree	Disagree slightly	Neutral/ Mixed	Agree slightly	Agree	Agree strongly

- 10) How do you define a Close Working Relationship:

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