A Review of Adult Attachment Measures:

Implications for Theory and Research

Judith A. Crowell

and

Dominique Treboux

State University of New York at Stony Brook

Abstract

There has been increasing interest in adult attachment from both theoretical and empirical perspectives. Because the test of a theory is based on our ability to assess theoretical constructs, the review is organized around assessment techniques. Delineating the content, focus, assumptions, and correlates of different attachment measures highlights central issues and problems in conducting research in adult attachment. In this review, we present theoretical issues related to adult attachment, in particular, individual differences, working models, and the role of attachment in adult life. A summary of the measures commonly used in the study of adult attachment follows. The literature review is organized by measure, examining topics such as relations between childhood experiences and adult attachment status, and adult attachment and adult personality and functioning, parenting and partnership behavior. Studies which explore relations between measures are discussed before concluding with thoughts about future directions.

Key words: attachment, adult attachment, marriage, working models

A Review of Adult Attachment Measures: Implications for Theory and Research

The past few years have seen a rise in interest in adult attachment from both theoretical and empirical perspectives. The research draws upon Bowlby's theory of attachment (Bowlby, 1969/1982; Bowlby, 1973; Bowlby, 1980), and has gone in several directions, examining (1) the relation between childhood attachment experiences and parenting behavior, and intergenerational transmission of attachment patterns, (2) the impact of childhood attachment experiences on adult relationships, and the role of attachment in adult-adult relationships, and (3) the role of working models or representations of attachment in influencing thoughts, feelings, and behavior in the two domains of adult functioning: parenting and romantic relationships. This review addressed some key issues in adult attachment which have arisen from the recent proliferation of research and controversy about the topic.

Because the test of a theory is based on our ability to assess theoretical constructs, the review is organized around assessment techniques. Delineating the content, focus, assumptions, and correlates of different attachment measures highlights central issues and problems in conducting research in adult attachment. Moreover, it forces us to look closely at Bowlby's theory and its postulates, and reminds us that the theory makes specific hypotheses about the attachment behavior system, and it is not a theory of parenting, infant development, personality, relationships, or a general theory of all good things.

In this review, we present theoretical background, including issues related to individual differences, working models, and the role of attachment in adult life. A summary of the measures used in the study of adult attachment follows, including a table of basic information allowing comparisons among the measures. The literature review is organized by measure, examining topics such as relations between childhood experiences and adult attachment status, and adult attachment and adult personality and functioning, parenting and partnership behavior. Studies which explore relations between measures are discussed, before concluding with thoughts about future directions.

Theoretical Background

What is the attachment behavior system?
Bowlby described the attachment behavior system as a motivational control system which has the goal of promoting safety and felt security in infancy and childhood through the child's relationship with the attachment figure or caregiver (Bowlby, 1969/1982). Attachment behaviors are the observable elements of the system (crying, calling, clinging, searching, etc.), and reflect "the activation of an inferred and not directly observable *attachment behavior system* (Stevenson-Hinde, 1994), p. 62. The system is activated in times of danger, stress, and novelty, and has the outcome of gaining and maintaining proximity to and contact with the attachment figure. The attachment figure promotes attachment behavior by being available, responsive, protective, and comforting when a threat or stressor presents itself (Waters,Kondo-Ikemura,Posada, & Richters, 1991). The availability, responsiveness, and active support of the caregiver allows the child to confidently explore the environment under ordinary circumstances, secure in the knowledge that the attachment figure is there should any need arise.

What are individual differences in attachment behavior?
Individual differences in organization of attachment behavior and in expectations regarding attachment relationships are hypothesized to be related in large part to behavior of the attachment figure (versus child characteristics such as temperament), and the patterns of attachment are broadly characterized as secure and insecure (Ainsworth,Blehar,Waters, & Wall, 1978; Bretherton, 1985).

The secure pattern fits the description above in that the infant seeks and receives protection, reassurance, and comfort when stressed. Confident exploration is optimized because of the support and availability of the caregiver. The insecure patterns (avoidant, ambivalent, disorganized) develop when attachment behavior is met by rejection, inconsistency, or even threat from the attachment figure, leaving the infant "anxious" about the caregiver's responsiveness should problems arise. To reduce this anxiety, the infant's behavior comes to fit or comple-

ment the attachment figure's behavior, in other words, it is adaptive or strategic within that relationship. For example, the infant whose attachment behavior has been routinely rejected develops an insecure/avoidant attachment pattern. When presented with a stressful experience the infant avoids contact with or even looking at the attachment figure, minimizing the expression of distress in the situation and precluding rejection from the caregiver (Main, 1981; Main & Goldwyn, 1984). In contrast, the insecure/ambivalent pattern is associated with heightened attachment behavior in the face of an inconsistent attachment figure (Cassidy & Berlin, 1994).

Consistent with attachment theory, the patterns of attachment are relatively stable across time in samples from the general population (as opposed to at-risk samples) (Main & Cassidy, 1988; Waters, 1978; Waters,Crowell, Treboux,Merrick, & Albersheim, 1995). As the child develops, there is an assumption of continuity of parental care, which contributes strongly to the stability of the attachment pattern (Bretherton, 1985). In childhood, if an attachment pattern changes, there should be a corresponding change in the quality of parent-child interactions (Bowlby, 1969/1982). Bowlby suggests that change in adult life is also possible. He hypothesized that change could occur through the influence of new emotional relationship and the development of formal operational thought; this combination of events would allow the individual to reflect on and reinterpret the meaning of past and present experiences.

What are working models or representations of attachment relationships?
A central developmental hypothesis in attachment theory is that early parent-child relationships are prototypes of later love relationships, a Freudian insight preserved and modified by Bowlby (Waters et al., 1991). Bowlby does not imply that there is a critical period in infancy which has implications across the lifespan (which would be the most extreme interpretation of a prototype hypothesis), but rather that there is a strong tendency for continuity of parent-child interactions which then feed back into the attachment behavior system. That is, in addition to effects on individual personality characteristics, child-parent relationships should be related to subsequent patterns of family organization and play a role in intergenerational transmission of family patterns.

Working models of attachment relationships are cognitive/affective constructs which develop in the course of behavioral interactions between the infant/child and its parents. As noted above, individual differences emerge in the expression of attachment behavior in the context of attachment relationships. Initially patterns of attachment reflect expectations about the parent's likely behavior in various situations. Eventually the child abstracts from these expectations a set of postulates about how close relationships operate and how they are used in daily life and in stressful circumstances.

These cognitive constructs are called "working" models because they are the basis for action in many situations and because in principle they are open to revision as a function of significant attachment related experiences. An individual's model of attachment involves postulates about both the parent and child role in relationships; in other words, it is a model of the relationship and "even when the models of self and other have become distinct, they represent obverse sides of the same relationship and cannot be understood without reference to each other" (Bretherton, 1985), p. 12. The models are relatively stable constructs which operate outside awareness, guide behavior in relationships with parents, and influence expectations, strategies, and behavior in later relationships. This is the sense in which they can be characterized as "prototypes".

Bowlby's concept of mental representations or models has drawn considerable attention in the study of attachment in recent years. There has been a move in attachment research away from behavioral observations of infants towards assessments which attempt to capture the cognitive, emotional underpinnings of the attachment behavior system across the life span.

How are working models or representations important to attachment theory?
Waters (1994) notes that the idea of mental models is important to attachment theory for several reasons. First, a mental representation of attachment serves to explain the effects of early experience on later behavior and development. Secondly, Bowlby observed that in addition to the effects of actual experiences, children are strongly affected by what they are told, especially if what they are told conflicts with their own experiences and impressions. Although not specific to the attachment behavior system, mental representations provided a mechanism

through which a person's <u>subjective view and experience, rather than solely the objective features of experience, can influence behavior and development</u>.

Third, Bowlby used the idea of a working model as a way of explaining <u>attachment responses in new situations</u>, postulating that the child constructs a model of the world and the self through repeated and ongoing interactions with caregivers, a model which serves as an appraisal system and guide to behavior.

Fourth, by utilizing the idea of mental representations, Bowlby enabled attachment theory to reflect the fact that children go beyond the sensori-motor representations of secure base behavior that the control system model covers. The control system concept accounted for the apparent purposefulness and goal correctedness of infant behavior without attributing intention or unreasonable cognitive skills to the infant. At the same time, it is evident that adults have greater cognitive capacities at play in the conduct of relationships. Mental representations provided a way of understanding <u>attachment as a tie that binds people across time and space</u>. Mental representation provides an explanation for differences between expressions of child and adult attachment, which seem to be especially related to how far into the past or the future a person can see and/or anticipate (Waters, 1994)..

Bowlby's incorporation of mental representations within attachment theory allows for a life span perspective of the attachment behavior system, providing a way of understanding developmental change in the expression of attachment, and its ongoing influence on development and behavior in relationships. Attachment theory does not specifically define mental representations or make explicit their mechanism of development or functioning. Therefore at the present time, the terms working model or cognitive representation are considered "conceptual metaphors" (Bretherton, 1985). Further exploration and explication is needed to understand the specific nature of mental representations within the attachment behavior system.

What is attachment behavior in adult life and what is its function?
Mary Ainsworth (1991) highlights the function of the attachment behavior system in adult life, suggesting that a secure attachment relationship will facilitate functioning and competence outside of the relationship. She notes there is "... a seeking to obtain an experience of security and comfort in the relationship with the partner. If and when such security and comfort are available, the individual is able to move off from the secure base provided by the partner, with the confidence to engage in other activities" (p. 38)(Ainsworth, 1991). Weiss (1982) suggests that attachment figures in adult life need not be protective figures, but rather they can be seen as "fostering the attached individual's own capacity for mastering challenge (p. 173). Attachment relationships are distinguished as those which provide feelings of security and place, without which there is loneliness and restlessness, as opposed to relationships which provide guidance or companionship, opportunities to feel needed or to share common interests or experiences, feelings of competence, alliance and assistance (Ainsworth, 1985; Weiss, 1974).

The answers to questions about developmental changes in attachment and the role of the attachment behavior system require us to examine the role of secure base and other attachment behaviors in adults and their connections to attachment representations. The behavioral elements of attachment in adult life should be similar to those observed in infancy, and, in fact, adults do show a desire for proximity to the attachment figure when stressed, increased comfort in the presence of the attachment figure, and anxiety when the attachment figure is inaccessible (Weiss, 1982). Hazan and Shaver (1994) suggest a developmental progression in the acquisition of these elements across adolescence. Thus, especially in early adolescence, close relationships are marked by proximity seeking or desire for physical closeness (Fisher, 1992). Seeking the partner in a time of need or emergency is the next development, i.e., use of the partner as a safe haven. Finally, the partner is used as a secure base late in adolescence, perhaps because it is relatively difficult to sustain and support a relationship day in and day out (Crowell & Waters, 1994).

A major difference between adult-adult attachment and the parent-child relationship is that the attachment behavior system in adults is reciprocal; in other words, adult partners are not assigned to or set in the role of "attachment figure/caregiver" or "attached individual/ care receiver", although this may be true in any given relationship. Both attachment behavior and serving as an attachment figure should be observable in individuals, and the two roles may shift rapidly between the partners. Other differences are that attachment relationships between

adults often serve a wide variety of other functions, including sexual bonds, companionship, sense of competence, and shared purpose or experience (Ainsworth, 1985; Weiss, 1974).

The Study of Adult Attachment

What has been assessed in adult attachment research?
Infant attachment behaviors are easily observable in naturalistic and laboratory situations because attachment behavior is readily provoked in infancy and it is expressed through action rather than language (Ainsworth et al., 1978; Waters & Deane, 1985). In contrast, the attachment behavior system is not so easy to assess in adult relationships. For example, how does one operationalize secure base behavior? What does it look like in the every day life of adult partners? The reciprocal nature of the relationships complicates the picture. Perhaps because of these difficulties, researchers have tended to focus on individuals rather than couples in assessments of adult attachment, and they have emphasized assessments which utilize language and perceptions, that is, interviews and self-report measures, rather than behavioral observations (Hazan & Shaver, 1994).

Studies of adult attachment can roughly be divided into (1) those which focus on individual differences (eg., see (Bartholomew & Horowitz, 1991; Cohn,Silver,Cowan,Cowan, & Pearson, 1992b; Crowell & Feldman, 1988; Fonagy,Steele, & Steele, 1992; Hazan & Shaver, 1987; Kobak,Ferenz-Gillies,Everhart, & Seabrook, 1991; Main, Kaplan, & Cassidy, 1985; Owens,Crowell,Pan,Treboux,O'Connor, & Waters, in press), and (2) those which examine dimensions of attachment, such as security or availability (eg., see (Borman,Allen,A.,Cole, & Hauser, 1993; Collins & Read, 1990; Feeney & Noller, 1990; Hauser, 1992; Kobak et al., 1991; Simpson, 1990; West & Sheldon-Keller, 1992).

What methods have been used to assess adult attachment?
Different aspects of attachment theory and of adult relationships have led to development of a variety of assessment methods. The following summary describes some of the measures of "adult attachment", meaning instruments which attempt to classify models of attachment or attachment styles, or which identify characteristics of models of attachment, attachment styles, or behaviors of adult attachment relationships. The measures were all developed using ideas from attachment theory, and are self-report or interview measures. Direct observation of adult attachment behavior is gathering interest, but the systems for scoring the behavior are under development (eg., see (Crowell & Waters, 1993; Wampler, 1994).

Summary of Measures

The measures described are of three general types: Interviews, q-sort assessments, and questionnaires. Basic descriptions of the measures are presented in Table 1.

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Interviews
1. Adult Attachment Interview (George,Kaplan, & Main, 1985). In an effort to capture a generalized representation of attachment, Mary Main and colleagues developed a semi-structured interview about childhood attachment relationships, and the meaning which the individual currently gives to past experiences. The narrative is examined for material purposely expressed by the individual, and for material the individual seems unaware of, eg., apparent incoherence and inconsistencies of discourse, thus aiming to assess elements of the attachment representation which are not conscious. Scoring is based upon (a) descriptions of childhood experiences, (b) language used in the interview, and (c) ability to give an integrated, believable account of experiences and their meaning. The language and discourse style used is considered to reflect the state of mind with respect to attachment.

The AAI scoring system was developed using interviews of parents and knowledge of the Strange Situation (Ainsworth et al., 1978) classifications of their infants. It has been refined and expanded since that time, see (Main & Goldwyn, 1994). The AAI is scored from a transcript using scales which characterize childhood experience with each parent: Mother and father loving, rejecting, neglecting, involving, and pressuring. Other scales

assess discourse style: Overall coherence of transcript and of thought, idealization, insistence on lack of recall, active anger, derogation, fear of loss, metacognitive monitoring, and passivity of speech. Scale scores are used to assign the adult to one of three major classifications: secure/autonomous, insecure/dismissing, and insecure/ preoccupied.

Individuals classified as secure/autonomous describe diverse childhood experiences, maintain a balanced view of early relationships, value attachment relationships, and view attachment-related experiences as influential in development. Adults are classified as insecure on the basis of incoherency, meaning they fail to integrate memories of experience with assessments of the meaning of experience. Adults classified as insecure/dismissing deny or devalue the impact of early attachment relationships, have difficulty with recall of specific events, often idealize experiences, and usually describe an early history of rejection. Adults classified as insecure/preoccupied display confusion about past experiences, and current relationships with parents are marked by active anger or with passivity.

Individuals may be classified as unresolved in addition to a major classification. These adults report attachment-related traumas of loss and/or abuse which have not been reconciled. The unresolved classification is given precedence over the major classification in classifying the individual, and is considered an insecure classification. A "can't classify" category is assigned when scale scores reflect elements rarely seen together in an interview, eg., high idealization of one parent and high active anger at the other. Such interviews are highly incoherent and insecure.

Stability has been demonstrated in a number of studies (Bakermans-Kranenburg & van IJzendoorn, 1993; Benoit & Parker, 1994; Crowell & Treboux, 1991; Crowell,Waters,Treboux, & O'Connor, 1995; Fonagy,Steele, & Steele, 1992; Sagi,van IJzendoorn,Scharf,Koren-Karie,Joels, & Mayseless, 1994), and there are no gender differences in distribution of classifications (van IJzendoorn & Bakersmans-Kranenburg, in press). Discriminant validity of the AAI has been demonstrated with respect to intelligence, memory, cognitive complexity, social desirability, and overall social adjustment (Bakermans-Kranenburg & van IJzendoorn, 1993; Crowell,Waters,Treboux, Feider,O'Connor,Posada, et al., submitted for publication; Sagi et al., 1994) (see Table 1).

2. Attachment Interviews (Bartholomew & Horowitz, 1991). The interviews assess prototypes of adult attachment. The prototypes were based on Bowlby's idea that an attachment model involves ideas concerning both self and other. Differing from Bowlby's original postulate, the scoring system views the models of self and other as independent (Griffin & Bartholomew, 1994b), and hence a four category system is delineated. The secure prototype reflects an individual who is comfortable in relationships, values relationships, and can be both intimate and autonomous (positive view of self and others). The preoccupied prototype is characterized by anxiety and emotionality, and overinvolvement and dependency in relationships (negative re: self, positive re: others). The dismissing prototype is characterized by an person who values independence (positive self) and denies a desire for intimacy (negative re: others). The fearful individual is anxious, distrustful, and fearful of rejection (negative re: self and others).

The Peer Attachment Interview inquires about friendships, romantic relationships, and the significance of close relationships. A parallel version asks for relationships with parents, experiences of separations and upsets, as well as an overview of childhood experiences and their influences on the subject. The interviews are scored by two coders who describe the degree to which the subject matches the prototypes using 9-point scales. Coders' scores are averaged, and subjects are assigned to prototypes for peer and family relationships. The Peer Interview is also rated on 15 dimensions which include (a) descriptions of the interview, (b) descriptions of friendships and romantic relationships, (c) self-descriptions, and (d) behavior in relationships.

The Peer Interview has been found to be moderately stable (Scharfe & Bartholomew, 1994). Gender differences have been found: Women were more likely to be preoccupied, and men were more likely to be rated dismissing (Bartholomew & Horowitz, 1991). Models of self and other derived from the interview and using the Relationship Questionnaire (described below) are unrelated (Griffin & Bartholomew, 1994b). Discriminant validity has not been specifically assessed.

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3. Current Relationship Interview (CRI) (Crowell, 1990). The interview investigates the attachment representation within the adult partnership by examining descriptions of the attachment behavior of the self and partner using a format similar to the AAI. The scoring system (Owens & Crowell, 1992) parallels the AAI scoring system in that experiences with the partner, discourse style, and believability/coherence are assessed using a number of scales. Rating scales are used to characterize (a) the partner's behavior, (b) the subject behavior, and (c) the subject's discourse style: anger, derogation, idealization, passivity of speech, fear of loss, and overall coherence.

The interview is scored from a transcript and the subject is classified into one of three major patterns. The SecureCRI interview is characterized by coherence, i.e., the subject describes convincing loving behavior by the partner, or can coherently discuss negative partner behavior. The subject expresses the idea that an adult relationship provides support for the individuals and for the joint development of the partners. The DismissingCRI classification is given when there is little or no evidence that the individual finds support and comfort within the relationship. The relationship may be idealized, the need for autonomy and separateness may be emphasized, and/or there may be an emphasis on materialism. The PreoccupiedCRI classification is given when the subject expresses strong dependency or a need to control the partner, and/or may be dissatisfied or anxious about the partner's ability to fulfill his/her needs. The subject expresses ambivalence or confusion about the relationship, the partner, and/or the self. An unresolved classification is given with a major classification if a previous romantic relationship is exerting a disorganizing influence on the individual currently.

Moderate stability of classifications has been found (Crowell,Treboux,Owens, & Pan, 1995; Owens,Crowell,Pan, Treboux,O'Connor, & Waters, in press). Security was unrelated to subjects' education, gender or duration of relationship; there was a significant relation between intelligence scores and security (Owens, 1993).

Q-Sort Assessments
4. Adult Attachment Q-sort (Kobak, 1989). The Q-sort is an alternative method of scoring the Adult Attachment Interview and was derived from the original scoring system. It emphasizes the relation between affect regulation and attachment style by examining the use of minimizing versus maximizing emotional strategies. The interview is scored from transcripts using a forced distribution of descriptors in two dimensions: Security/anxiety and deactivation/hyperactivation. Security reflects coherence and cooperation within the interview, and memories of supportive attachment figures. Deactivation strategies correspond to dismissing strategies, whereas hyperactivating strategies reflect the excessive detail and active anger seen in many preoccupied subjects. The individual's sort is correlated with a prototypic sort, and the individual can be classified into a Secure, Dismissing or Preoccupied category on the basis of the correlations with the prototypes.

Using the Q-sort method of scoring, men were more likely to be described as dismissing (Borman-Spurrell,Allen, Hauser,Carter, & Cole-Detke, submitted for publication). Discriminant validity assessments were not included in the studies reviewed.

5. Marital Q-sort (Kobak & Hazan, 1991). The Q-sort assesses two dimensions of attachment within the current relationship: Reliance on the partner and psychological availability. The reliance scale assesses use of the partner as a secure base/safe haven, whereas availability assesses being a secure base/ safe haven to a partner. Each subject completes a self-report q-sort and a sort of his/her partner's behavior. Attachment security is the combined score of self-reports of reliance on the partner and of partner's availability. Husbands and wives report that wives are more reliant on husbands than the reverse, but there were no gender differences with respect to availability (Kobak & Hazan, 1991). Information regarding stability and discriminant validity of the measure was not provided in the studies reviewed.

Questionnaires and Rating Scales
6. Adult Attachment Styles (AAS) (Hazan & Shaver, 1987) and adaptations (Collins & Read, 1990; Davis, Kirkpatrick,Levy, & O'Hearn, 1994; Feeney & Noller, 1990; Simpson, 1990). Drawing upon the concept of infant attachment patterns, Hazan and Shaver (1987) developed a self-selection measure to capture adult attachment styles with respect to feelings about the self in relationships, especially romantic relationships. The secure style characterizes the subject as comfortable with intimacy, dependency, and reciprocity in relationships, as well

as low in anxiety about loss. The avoidant style emphasizes a lack of trust, and discomfort with intimacy and dependency. The ambivalent style describes a desire to be close, anxiety about rejection, and awareness that the individual desires intimacy to a degree greater than most people.

Seventy percent of subjects identified themselves as having the same attachment style as four years earlier (Kirkpatrick & Hazan, 1994). The secure group was most stable; however, subjects who originally identified themselves as secure and then broke up with a partner were more likely to identify themselves as insecure four years later. In a sample of college students, there was 75% stability over 10 weeks, and change in reported style was associated with formation of new relationships (Feeney & Noller, 1992). Attachment style has been unstable in several studies (Baldwin,Fehr,Keedian,Seidel, & Thompson, 1993). No gender differences have been found in the distribution of classifications (Brennan,Shaver, & Tobey, 1991; Feeney & Noller, 1990; Hazan & Shaver, 1987; Kirkpatrick & Hazan, 1994).

The original measure has been modified with the intention of improving its psychometric properties and increasing its sensitivity (See Table 1). Simpson (1990) "decomposed" the original descriptions into 13 items which are rated on 7-point scales. The items were aggregated to form continuous indices of secure, avoidant and anxious styles. Collins and Read (1990) developed the Adult Attachment Scale using the descriptions and adding items regarding availability of attachment figures and response to separation. In a study of dating couples (Davis et al., 1994), the descriptions of the AAS were rated on 5-point scales. The items of the Adult Attachment Questionnaire (Feeney & Noller, 1990; Feeney,Noller, & Hanrahan, 1994) can be grouped into three factors of Security, Avoidance, and Anxiety, or five factors of Confidence, Discomfort with Closeness, Need for Approval, Preoccupation with Relationships, and Relationships as Secondary.

7. Relationship Questionnaire (Bartholomew & Horowitz, 1991). The questionnaire uses the four category model described above, and the adult rates self-descriptions on 7-point scales. The secure description describes someone who is comfortable with closeness and dependency, and does not worry about being rejected or alone. The dismissing style emphasizes independence and self-sufficiency. The preoccupied style describes an individual who is desirous of great intimacy, concerned about being alone, and worried that others won't value him/her as much as they are valued. The fearful style is one of discomfort with closeness, difficulty with trust, and fear of being hurt. There is moderate stability of self-classification (see Table 1) (Scharfe & Bartholomew, 1994). In a large study of college students, men classified themselves as dismissing and preoccupied more often than women, and women were more likely to classify themselves as secure or fearful (Brennan et al., 1991).

8. Reciprocal Attachment Questionnaire (West,Sheldon, & Reiffer, 1987; West & Sheldon-Keller, 1992). The questionnaire assesses the quality of an individual's most significant adult attachment relationship for the purpose of designing therapeutic interventions and predicting treatment outcome. The subject is asked to rate the person to whom he/she feels closest and with whom he/she has had a relationship for at least 6 months (not a member of family of origin). The questionnaire consists of scales of secure base, separation protest, proximity seeking, feared loss, reciprocity, availability, and use of the attachment figure. Two factors are derived from these scales: Separation anxiety and reciprocity. Scale score reliabilities and test-retest reliabilities have been demonstrated.

Review of Adult Attachment Research

Despite a common interest in attachment theory and the use of classification labels drawn from the work of Ainsworth (Ainsworth et al., 1978) and Main (Main & Goldwyn, 1994), it is easy to see from descriptions of the measures that researchers have developed assessments of adult attachment in very different ways. The apparent common theoretical ground of the measures has led to confusion and even discord (see issue of Psychological Inquiry, 1994, Vol. 5) in the study of adult relationships and has obscured the fact that several of the measures appear to address very different constructs. Relatively little work has been done (and even less published) which examines relations between the different measures.

The review of adult attachment research is organized with respect to questions relevant to adult attachment. Within each section below, studies which used interview assessments are discussed first, followed by those which utilized q-sorts, then questionnaires.

What is the relation between experiences with attachment figures in childhood and adult attachment status?

As described above, attachment theory suggests that models of attachment develop initially in childhood relationships with parents, and serve as prototypes for later relationships. This critical hypothesis must be tested to understand adult attachment and its meaning. It has been studied in several ways: (1) coders' ratings of subjects' reports of past relationships with parents, (2) adults' current reports of past experience, and of specific experiences within families, and (3) longitudinal studies of attachment patterns from childhood to adult life.

1. Adult Attachment Interview. The scale scores of the AAI describe experiences with each parent in childhood, eg., loving, rejecting, as assessed by the interview coder (Main & Goldwyn, 1994). In brief, the secure classification is commonly associated with believable reports of loving behavior by parents. However, as security is related to coherence of the interview, any type of childhood experience may be associated with being secure. Insecure classifications are associated with accounts of negative behaviors of parents and/or incoherent/ unconvincing reports of loving behavior. The dismissing classification is associated with memories of rejection (pushing the child to be more independent) even if the subject gives an overarching description of loving parents. The preoccupied classification is associated with memories of non-loving, involving parenting, and in some cases, role-reversing parenting, even if the subject at times assesses his/her parents in positive ways.

No relation has been found between classifications and self-reports of the subjects' parents' behavior (Crowell, Treboux, & Waters, 1993; de Haas,Bakersman-Kranenburg, & van IJzendoorn, in press); however there is some relation between AAI experience scores and memories of parenting (de Haas et al., in press). A study of the relation between coder ratings of past experiences and subjects' self-reports of current relationships with parents revealed that when ratings and self-reports were consistent (AAI scales indicated negative childhood experiences with negative current reports, or vice versa), subjects had higher scores for coherence of transcript (Pearson, Cowan,Cowan, & Cohn, 1993). Reports of change in relationships with parents (usually from poor past relationships to positive current ones) were associated with low coherence of transcripts, suggesting a lack of integration between past experience and current interactions.

Examining a specific type of experience with parents, the relation between attachment security in young adults and alcohol abuse by them and their parents was studied. No direct relation was found between parental alcoholism and alcoholism in the subjects. However, men classified as insecure were more likely to have an alcoholic parent, and were more likely to report themselves as alcoholic (Olmsted,Treboux,Crowell, & Waters, 1995).

The prospective longitudinal study is the most powerful assessment of relations between childhood experience and adult attachment relationships. The Berkeley Guidance Study examined the question by rating descriptive reports of parents and their children with the Attachment Q-sort (Waters, 1989) and correlating the children's security scores with relationship measures 30-40 years later (Skolnick, 1986). Security of attachment scores were related to adult sociability and overall adjustment (including marital satisfaction, sociability and psychological health) in men, but not women. In another study, AAI classifications of late adolescents showed correspondence with ratings of maternal responsiveness assessed in the subjects' infancy; dismissing adolescents had the least responsive mothers (Beckwith,Cohen, & Hamilton, 1995).

Two studies have assessed the relation between infant attachment security and AAI classifications in late adolescence and young adulthood. (1) There was 75% secure/insecure correspondence in late adolescents who participated as infants in a study of alternative living situations; the strongest stability was in the preoccupied group (Hamilton, 1994). (2) Young adults seen as infants in a study of the stability of the Strange Situation (Waters, 1978) were interviewed 20 years later (Waters et al., 1995). There was 70% correspondence for secure/insecure status and 64% correspondence for three classifications. Lack of correspondence between infant and adult classifications was related to significant life stresses including death of a parent, life threatening illness in subject or parent, and divorce.

2. Current Relationship Interview (CRI). The association between experiences in childhood scored from the AAI and partners' reports of subjects' relationship behavior was examined (Owens, 1993): Men whose mothers were

loving and nonrejecting were described as more loving and less rejecting by their fiancees.

3. Adult Attachment Q-sort.
A German study of infant attachment security and attachment assessed at age 16 years with the Q-sort method of scoring the AAI found no relation between the two assessments (Zimmermann,Fremmer-Bombik, Spangler, & Grossman, 1995). Maternal AAI assessed when the children were six years old showed 71% correspondence with adolescent security status.

3. Adult Attachment Styles and adaptations. Retrospective reports of childhood experiences and self-reports of attachment style are associated in that subjects who classify themselves as secure report their parents to be warmer, more responsive and supportive than dismissing subjects (Hazan & Shaver, 1987; Shaver & Hazan, 1993). Dismissing subjects report their parents to be rejecting. Feeling that their fathers were unfair was characteristic of the ambivalent group. Separations from parents and parental divorce were not related to attachment style. Examining a particular type of experience with a parent, one study found subjects who identified themselves as insecure were more likely to report one of their parents had a drinking problem (Brennan et al., 1991).

In a study of dating couples, Collins and Read (1990) found women who reported positive relationships with fathers were more likely to date men who were comfortable with closeness and dependency than women who reported cold or inconsistent relationships with fathers. Men with problematic relationships with their mothers were more likely to be dating anxious women and/or those who felt they could not count on others.

4. Relationship Questionnaire. Subjects who identified themselves as fearful were more likely to report one of their parents had a drinking problem (Brennan et al., 1991). Subjects who were victims of incestuous abuse were most likely to be fearful (Alexander, 1993).

What is the relation between adult attachment status and adult personality and functioning?
Many studies have explored relations between personality characteristics and functioning and adult attachment assessments. Social competence and adaptive functioning have been theoretically and empirically linked to attachment, insofar as a child who can use the parent as a secure base is free to comfortably explore the environment and new relationships and to return for comfort or reassurance in times of doubt or failure without concern for the parent or preoccupation with her availability (Allen & Crowell, 1995; Bretherton, 1985; Waters & Sroufe, 1983). Studies of adult attachment and personality and functioning assess several domains: (1) self-esteem and personality traits, (2) peer relationships and loneliness, (3) social adjustment, (4) physiological measures, and (5) psychopathology and feelings of depression.

1. Adult Attachment Interview.
Self-esteem and personality traits. Studies of self-esteem and AAI classifications yield mixed results. College students classified as secure viewed themselves as more lovable and likable than insecure subjects, and reported higher self-esteem overall (Treboux,Crowell, & Colon-Downs, 1992). Similarly, in a sample of low SES mothers with ill children, secure women scored higher on feelings of competence, likability, self-approval, identity, and integration than insecure mothers (Benoit,Zeanah, & Barton, 1989). However in another sample of women (Zeanah,Benoit,Barton,Regan,Hirshberg, & Lipsett, 1993), a sample of engaged couples (Waters & Crowell, 1994), and in two samples of young adults (one psychiatrically hospitalized, one comparison) (Borman-Spurrell,Allen,Hauser,Carter, & Cole-Detke, 1994), no relation between classifications and self-esteem has been found.

Peer relations and loneliness. College students classified as secure were rated by peers as more ego-resilient, less anxious, and less hostile than insecure students (Kobak & Sceery, 1988). Secure students reported less distress and higher levels of social support than insecure students. Dismissing subjects were rated by peers as hostile and anxious; they reported less support from families, and more loneliness in the spring of the first year than secure students. The preoccupied group was rated by peers as most anxious, and they endorsed the most symptoms on a psychiatric symptom checklist.

In a study of female college students, women classified as secure reported less loneliness and anxiety than insecure students (Smith & George, 1993). Preoccupied and unresolved students reported feeling anxious, and dismissing women reported loneliness and depression. Secure and preoccupied students reported continued preference for parents and family members as attachment figures, as opposed to peers or romantic partners. Students classified as unresolved reported feeling isolated from attachments of any sort. A study of pregnant adolescents found secure subjects had higher levels of relatedness (the ability to view others as individuals and understand their thoughts and feelings) than insecure subjects (Levine,Tuber,Slade, & Ward, 1991)

Adjustment. AAI classifications were not related to balanced, uninvolved, or overinvolved attitudes toward jobs in a sample of women recruited from the general population; however, a moderate relation was found between security and ratings of social adjustment (Crowell et al., submitted for publication). No differences were found among AAI groups on a measure of general interpersonal trust (Crowell et al., 1993).

Adult psychopathology. Several studies have found associations between insecurity and self-reports of anxiety, depression, and psychiatric symptoms including alcohol abuse. Clinical populations have a much higher proportion of insecure classifications than the general population (van IJzendoorn & Bakersmans-Kranenburg, in press), but no specific relation between AAI classification and psychopathology has emerged.

In one study, depressive symptoms related to ratings of negative past and present relationships with parents, but were unrelated to coherence in the AAI (Pearson et al., 1993). This suggests that awareness of difficulties in one's past, i.e. the capacity to self-report problems, may be related to depressive symptoms regardless of attachment status.

A study of male criminal offenders admitted to forensic psychiatric hospitals in the Netherlands found 95% of the subjects were insecure, with 53% unresolved/can't classify, and 20% preoccupied (van IJzendoorn,Feldbrugge, Derks,de Ruiter,Verhagen,Philipse, et al., submitted for publication). The nature of the crime was unrelated to classification, although preoccupied men tended to be more violent and more likely to choose a victim known to them, and they were more likely to have personality disorder diagnoses. Subjects designated "can't classify" were more likely to have been raised in institutions.

2. Attachment Interviews

Self-esteem and personality traits. Subjects classified as secure and dismissing scored higher than preoccupied and fearful subjects on measures of self esteem and self acceptance, and lower on reports of distress (Bartholomew & Horowitz, 1991). Those classified as secure and preoccupied had higher sociability ratings.

Peer relations and loneliness. Interpersonal issues identified by self and peers were assessed along axes of warmth and dominance, and were examined with respect to the four classifications (Bartholomew & Horowitz, 1991; Horowitz,Rosenberg, & Bartholomew, 1993). The secure group showed no pattern of problems, and were rated as interpersonally warm, nurturant, exploitable, and expressive. The dismissing group was characterized by coldness, introversion and hostility. The preoccupied group was rated as overly expressive and seeking dominance, whereas the fearful classification was associated with lack of assertiveness and social inhibition. The latter two groups expressed the most interpersonal distress. The interview about family was moderately correlated with the Peer Attachment Interview (Bartholomew & Horowitz, 1991). Using the interviews to predict interpersonal problems, the peer interview scores accounted for dominance aspects of interpersonal difficulties, whereas both peer and family ratings contributed to the warmth aspects of interpersonal relationships.

3. Adult Attachment Q-sort.

Physiological measures. Dozier and Kobak (1992) reported that college students who used deactivating (dismissing) strategies showed an increase in skin conductance during the interview when asked about separations, rejection, effects of childhood on current personality, why their parents behaved as they did, and changes in the relationship with parents since childhood. Despite subjects' efforts to minimize negative aspects of childhood and the importance of early relationships, they nevertheless showed signs of physiological distress and arousal when challenged with these topics (Dozier & Kobak, 1992).

4. Adult Attachment Styles and adaptations.

Self-esteem and personality traits. Self-classified secure subjects report higher self-esteem than insecure subjects (Borman-Spurrell et al., 1994; Collins & Read, 1990; Feeney & Noller, 1990; Feeney et al., 1994).

Attachment styles are related to the personality traits of neuroticism, extraversion, and agreeableness, but not to openness to experience or conscientiousness (Shaver & Brennan, 1992). The styles were more effective than personality traits in predicting the subject being in a relationship 8 months later, and satisfaction and commitment to the relationship.

Peers and loneliness. Subjects who classifed themselves as ambivalent reported feeling most lonely, and secure subjects had the lowest loneliness scores (Borman-Spurrell et al., 1994; Hazan & Shaver, 1987). Security was associated with self-reports of dating assertiveness and social competence (Borman-Spurrell et al., 1994).

Secure subjects reported themselves to be more expressive and trusting than avoidant subjects, and more positive about the social world than ambivalent subjects (Collins & Read, 1990). Baldwin and colleagues (1993) found a relation between attachment styles and expectations about interpersonal relations by self-report and a word recognition task. High self-disclosure and attraction to high disclosing partners were related to security and ambivalence in a study of Israeli college students (Mikulincer & Nachshon, 1991). Observations of these subjects in a disclosure task revealed that secure students were more responsive to partners' disclosures.

Preliminary analyses of attachment behaviors with parents and peers assessed by interview found that children who reported having no safe haven were most likely to classify themselves avoidant (Hazan & Zeifman, 1994). Insecure adolescents were more likely to report having had a romantic relationship. The same interview with adults found those who were avoidant reported less proximity seeking and safe haven behavior with partners, and ambivalent subjects were more likely to report seeking support outside of their romantic relationships.

College students who identified themselves as secure were more positively oriented to their support networks than avoidant or ambivalent subjects (Wallace & Vaux, 1993). Interdependence with the network was lowest for the avoidant group, and mistrust was characteristic of both insecure groups.

Adjustment. Ego resiliency and under-control were associated with attachment style in young adults, with the avoidant group scoring most poorly for each dimension (Borman-Spurrell et al., 1994). Ego development was not related to attachment style.

Drawing upon the theoretical link between attachment and exploration, the relation between attachment style and questionnaire responses about love and work was examined (Hazan & Shaver, 1990). Individuals who classified themselves as secure reported high work satisfaction, while ambivalence was associated with feelings of insecurity at work. Avoidant subjects reported interpersonal difficulties at work but were satisfied with the job itself. Secure subjects were more likely to value relationships above work, whereas avoidant subjects emphasized the importance of work. The ambivalent group most often reported that relationships interfered with work.

Psychopathology. Comparison of women with clinical depression and those without symptoms found that depression was associated with attachment style, specifically greater fearful avoidance (Carnelley, Pietromonaco, & Jaffe, 1994). In a study of young adults, reports of delinquent behavior and drug use were not related to attachment styles, but symptoms of anxiety and depression were associated with insecurity, especially ambivalence (Borman-Spurrell et al., 1994).

Israeli students were assessed following the Gulf War: By self-report, ambivalent subjects were most distressed, and avoidant subjects were more hostile, somaticizing, and avoidant of trauma compared with secure subjects (Mikulincer,Florian, & Weller, 1993). In another sample of students, attachment styles were associated with particular fears regarding death: Secure students expressed the least fear of death, ambivalent subjects feared that they would not be missed (loss of social identity), and avoidant subjects feared the unknown aspect of death (Mikulincer,Florian, & Tolmacz, 1990).

5. Relationship Questionnaire

Self-esteem and personality traits. The self-model dimension of the RQ was highly correlated with neuroticism, and moderately with extroversion, openness to experience, and agreeableness; the other-model dimension correlated with extroversion and openness (Griffin & Bartholomew, 1994a). The RQ added significantly (above the Big Five personality trait scales) to the prediction of assertion of autonomy and emotional reliance on others.

Psychopathology. The distribution of classifications in female victims of incestuous sexual abuse was significantly different from a normative sample, with 58% describing themselves as fearful and 13% as secure (Alexander, 1993). Post-traumatic symptoms of depression, distress and intrusive thoughts were related to abuse characteristics (predominantly age of onset), but not attachment status. Psychological numbing/denial was associated with attachment status (secure subjects scored lowest). Personality disorders assessed by self-report inventory were associated with attachment status, but not abuse characteristics.

6. Reciprocal Attachment Questionnaire.

Psychopathology. A comparison of psychiatric outpatients and volunteers from the general population found that female psychiatric patients were highly concerned about the whereabouts of their attachment figures and felt a strong need to have them physically available (West,Rose, & Sheldon, 1993), In addition, fear of loss of the attachment figure was a significant predictor of patient status.

What is the relation between adult attachment status and parenting behavior and the development of the attachment behavior system in offspring?

The Adult Attachment Interview (both scoring methods) is the only measure which has been used to examine intergenerational transmission of attachment and the relations between adult attachment status, parenting behavior and child outcome.

1. Adult Attachment Interview (Main & Goldwyn, 1994)

Attachment classifications across generations. Investigations of parental attachment classifications and infant Strange Situation classifications (Ainsworth et al., 1978) find approximately 80% correspondence (Ainsworth & Eichberg, 1991; Fonagy,Steele, & Steele, 1991; Main,Kaplan, & Cassidy, 1985; van IJzendoorn, 1992; Zeanah et al., 1993). A three generation study showed concordance between grandmothers' AAIs and mothers' AAIs, 75% for three classifications, and 49% using four classifications (ns, grandmothers were more often classified as unresolved) (Benoit & Parker, 1994). Attachment correspondence between grandmothers and infants was mediated by mothers' classifications.

Parental AAI and preschoolers' attachment status assessed at home has also been examined (Posada,Waters, & Crowell, in press). Security scores of children of secure mothers were higher than the scores of children of insecure mothers. Child behaviors which related to security of maternal AAI were pleasure in physical contact with the mother and smooth, cooperative interactions with the mother.

Parent-child studies. A number of studies address possible processes and mechanisms through which parental working models impact on parenting and child outcome. The studies are of normative samples and clinical or high risk samples, and range from broad assessments to more detailed observations.

Infancy. Comparison of kibbutz-reared infants who slept at home with their parents, and those who slept communally found 76% correspondence between maternal AAI and child Strange Situation for the home-based dyads versus 40% for communal dyads (Sagi,Aviezer,Joels,Korne-Karje,Meyseless,Scharf, et al., 1992).

Prenatal AAI classifications of adolescent mothers predicted maternal sensitivity assessed at 3 and 9 months and child attachment status at 15 months (Ward & Carlson, in press). In a German study, mothers classified as securely attached were more responsive, sensitive, and understanding to their infants in the first year of life and at two years of age (Grossman,Fremmer-Bombik,Rudolph, & Grossman, 1988). Similarly, in a pilot

study of mothers and infants, secure mothers showed greater attunement with their infants (Haft & Slade, 1989).

Mothers' perceptions and interpretations of infants' emotions and behavior with respect to their AAI classifications were examined using a videotaped scenario involving a crying child (Zeanah et al., 1993). Women classified as dismissing viewed the child as more spoiled, negative, and insecure than did women classified as secure.

Preschool. In a study of dyads from a child psychiatry clinic and a comparison sample, mothers classified as secure were more helpful and supportive to their preschoolers than insecure mothers (Crowell & Feldman, 1988). Examination of separation and reunion behaviors of the mothers and preschoolers found secure mothers prepared their children most effectively for separation and were most responsive to their children before and after separation (Crowell & Feldman, 1991). Mothers classified as preoccupied had the most difficulty with separation and prepared their children the least well; dismissing mothers left their children quickly and easily.

Parental security of attachment was associated with parents providing structure during the tasks, and secure fathers were warmer toward their preschoolers (Cohn,Cowan,Cowan, & Pearson, 1992a). Couples' concordance for AAI classification and parenting style was also examined: Insecure women married to insecure men were not as warm with their children as insecure women married to secure men. There was no difference between secure and insecure mothers who were married to secure men. This study suggests that spousal support may be helpful to "insecure" mothers in interactions with their children. .

School age. A clinical sample of school age children was studied in semi-structured interaction with their mothers (Crowell,O'Connor,Wollmers,Sprafkin, & Rao, 1991). Mothers classified as secure were warmer, more supportive, and smoother in transitioning between activities than insecure mothers. Mothers classified as dismissing were more abrupt in transitioning between tasks than preoccupied mothers. Observed child behavior did not differ with respect to maternal classification. However, ratings of behavior and affective symptoms by parents, teachers and the children revealed children of dismissing mothers had the highest levels of pathology.

Behavior problems in a sample of kindergarten children were related to parental attachment and marital status (Cowan,Cohn,Cowan, & Pearson, in press). Externalizing behavior of the children was predicted by fathers' attachment status (in particular, active anger at fathers' parents), and to a lesser extent marital status of both parents. Internalizing behavior of the children was predicted by mothers' characteristics. Quality of parents' marriages was related to fathers' attachment status, but not mothers' attachment status.

Adolescence. Autonomy and relatedness in family interactions of parents and their 14-year-old adolescents predicted the adolescents' later attachment classifications and/or coherence of discourse at age 24-25 years (Allen & Hauser, 1991). Adolescents later classified as unresolved were more hostile toward their mothers in interactions than adolescents subsequently classified as secure. Preoccupied and unresolved classifications were related to blurring of interpersonal boundaries and restricting of autonomy in adolescent interactions with mothers. The ego development of the same adolescents, and of their fathers, also predicted security of attachment and coherence of AAI transcript in young adult life (Hauser, 1992).

2. Adult Attachment Q-sort

Adolescence. Mothers classified as secure described their teenage daughters as more ego-resilient than insecure mothers, but the groups did not differ in descriptions of sons (Kobak,Cole,Ferenz-Gillies, & Fleming, 1993). During discussions of future plans, mothers with preoccupied/hyperactivating strategies were most anxious and their teenagers had trouble focusing on the topic.

What is the relation between adult attachment status and behavior and feelings in adult partnerships?
This important question was of immediate interest to social psychologists who approached the field from their

interest in romantic relationships. It is a relatively new area for developmental psychologists whose interest in adults came out of attachment research with infants and parents. Studies of adult attachment and adult partnerships address a variety of issues, 1) attitudes about love and relationships, 2) concordance or matching of classifications within couples, 3) marital satisfaction, commitment, and love, 4) conflict and other relationship behaviors, and 5) observed couples interactions.

1. Adult Attachment Interview

Concordance of attachment status. Meta-analysis of attachment classifications of 226 couples showed concordance between partners for attachment status which is accounted for by the secure/secure pairings (van IJzendoorn & Bakersmans-Kranenburg, in press). The percentage of concordant couples in this and other studies is ranges between 50-60% (Crittenden,Partridge, & Claussen, 1991; O'Connor,Pan,Waters, & Posada, 1995). Although there is some evidence for assortative mating, attachment status based on childhood experiences does not appear to be a dominant factor in choosing a partner.

Marital satisfaction and reports of the relationship. No relation between marital satisfaction and AAI classification has been found in several studies of couples (Cohn,Silver,Cowan,Cowan, & Pearson, 1992b; O'Connor,Posada,Waters, & Crowell, 1994; Zeanah et al., 1993). One study of low SES mothers of ill infants found a relation between marital satisfaction and security (Benoit et al., 1989) . A study of married women who rated feelings of trust and love for their husbands found no differences among attachment classifications (Crowell et al., 1993).

Conflict behavior. Associations between AAI classifications and reports of conflict behavior have been found. Insecure women reported more disagreements with husbands on topics related to time spent together and maintenance of the household, but not on leisure and time with family and friends. They reported higher verbal aggression and threats of abandonment from spouses than secure women (O'Connor,Pan,Treboux,Waters, Crowell,Teti, et al., submitted for publication). In a sample of engaged couples, insecure women reported their fiances used more verbal and physical aggression (O'Connor et al., 1995). If the woman was insecure, both partners reported heightened jealousy. The couples were reassessed after 15-18 months of marriage, and premarital insecurity predicted later reports of physical aggression (Gao,Treboux,Owens,Pan, & Crowell, 1995).

Crittenden and colleagues (1991) administered the AAI jointly to couples from a high-risk poverty sample, and then scored the interview separately for wife and husband. Seventy percent of couples with one partner dismissing and the other preoccupied reported physical violence between partners. In a sample of battered women (Sullivan-Hanson, 1990), 94% were classified as insecure (70% unresolved). Forty-two percent of a sample of men in distressed, violent marriages were classified as unresolved or can't classify, and 78% were insecure (Holtzworth-Munroe, 1993a).

Couples' interactions. Interactive behavior of husbands (but not wives) was related to AAI classifications in one study: Men classified as secure were in better functioning marriages (assessed during home visits) and had more positive interactions in structured task situations (Cohn et al., 1992b). "Insecure-insecure" couples showed more conflict and negative affect than "secure-secure" couples. The "insecure-secure" couples did not differ in interactions from "secure-secure" couples (in 8/10 the man was the secure partner).

2. Current Relationship Interview.

Concordance of attachment status. In a study of 45 engaged couples, partners were significantly concordant for the CRI (78% matching) (Owens et al., in press).

Marital satisfaction and reports of the relationship. Subjects classified as secureCRI reported greater satisfaction in the relationship, greater commitment and feelings of love overall, and fewer problems in the relationships than insecureCRI subjects (Owens, 1993).

Relationship behavior. First year college students were interviewed about their best friendships and romantic partnerships (Treboux,Crowell,Owens, & Pan, 1994). Security with the best friend and romantic partner

was associated with self-reports of attachment feelings and behaviors in that relationship (communication, contact seeking when stressed, etc.).

3. Adult Attachment Q-sort

Marital satisfaction and reports of the relationship. Marital satisfaction and attachment status were related for men in a study of couples (Kobak & Hazan, 1992).

Couples' interactions. The attachment status was examined with respect to observed interactions in problem solving and self-disclosing tasks (Kobak & Hazan, 1992). Husbands rated secure were more supportive in the tasks; those who used hyperactivating (preoccupied) strategies were rated as poor listeners. No direct relation was found between security and the behavior of women.

4. Marital Q-sort.

Couples' interactions. Attachment security within the marriage was related to problem solving behavior and marital adjustment in a study of couples' interactions (Kobak & Hazan, 1991). Subjects who felt their spouses were psychologically available were less rejecting. Secure men and women were less rejecting and more supportive in problem solving. Security was also related to good marital adjustment, as was agreement about attachment models within couples.

5. Adult Attachment Styles and adaptations.

Attitudes about love and relationships. Hazan and Shaver (1987) found that subjects with different attachment styles had different ideas about romantic relationships, with self-designated secure subjects focusing on the enduring aspects of relationships. Avoidant subjects expressed feelings that highly romantic relationships were fictional, and true love rare. Ambivalent subjects agreed that true love was rare, but also felt it is easy to fall in love.

Feeney and Noller (1990) examined attachment styles in college students and attitudes and styles of love. The avoidant group scored lowest on a scale of love and endorsement of a romantic ideal. Ambivalent subjects were characterized by emotional dependency, preoccupation, having ideas of all-encompassing love, and low scores on friendship. Secure subjects scored highest in self-confidence, avoidant subjects highest on avoidance of intimacy, and ambivalent subjects had the highest scores on neurotic love and lowest scores on circumspect love. Love styles were examined in another study of college students in which secure and ambivalent subjects endorsed romantic ideas and avoidant subjects endorsed logical ideas about love (Collins & Read, 1990).

Concordance of attachment status. The Carolina Couples Study found no matching of insecure types, i. e., insecure pairings were always avoidant/ambivalent combinations (Davis et al., 1994).. Individuals were most likely to be paired with a partner who was secure.

Collins and Read (1990) recruited dating couples and found that couples matched on comfort with closeness and tended to match on feeling they could count on others, but no matching for fear of abandonment (anxiety) was found. Subjects who were comfortable with closeness were unlikely to have anxious partners.

Marital satisfaction and reports of the relationship. Subjects who classified themselves as secure reported their most significant love relationship as being more positive, trusting, supportive, and enduring than avoidant or ambivalent subjects (Hazan & Shaver, 1987). Avoidant subjects reported more fear of closeness and jealousy, whereas self-classifed ambivalent subjects described high intensity of emotion and obsession in a number of domains, including sexual attraction, jealousy, and desire for union. Four years later subjects who originally described themselves as secure were most likely to be married, ambivalent subjects were most likely to be currently unattached, but looking, and avoidant subjects were most likely to be dating more than one person, or unattached and not looking (Kirkpatrick & Hazan, 1994). Anxious subjects reported more experience with relationship breakup than secure subjects, but were not less likely to still be with their original partner, suggesting that these relationships "were more volatile, but in the end, no less enduring (p. 137)".

A study of college dating couples found subjects who rated themselves high in security were in relationships which they characterized as interdependent, and they felt greater commitment, trust and satisfaction (Simpson, 1990). The converse was found for those who scored high in avoidance. Anxious women were more likely to date men who reported lower commitment, interdependence, trust and satisfaction, and those high in avoidance had partners who reported less commitment and trust. Collins and Read (1990) and Davis, et al., (1994) reported similar findings. In follow-up of these subjects six months later, 36% of the couples had broken up (Simpson, 1990), and distress associated with the breakup was examined. Men and women did not differ in reported distress. However, high avoidance in men was associated with low emotional distress with breaking up.

Another study of college students also reported differences in affective responses to relationship breakup with ambivalent subjects being most distressed and avoidant subjects expressing the most relief (Feeney & Noller, 1992). Avoidant subjects were most likely to have experienced a breakup. In contrast, a study of relationship stability found anxious ambivalent women and avoidant men reported the highest stability despite negative reports of the relationships (Davis et al., 1994).

Couples' interactions. Simpson and colleagues (1992) observed dating college couples in a situation designed to be anxiety provoking for the women. Secure women sought more support as their anxiety increased, whereas avoidant women's support seeking behavior decreased. Observed anxiety and reports of anxiety to the partners were unrelated to attachment style. Secure men gave support when the woman was overtly anxious and avoidant men withdrew support, independent of women's help-seeking behavior. Women were soothed by their partners if the partners made supportive remarks, and avoidant women appeared to be particularly benefited by supportive discussion. In contrast, the women overall tended to be resistant to physical contact, and this was most true for avoidant women. In this situation the attachment behavior system of the women was activated and the men were placed in the role of the attachment figure: Secure status was associated with using a secure base for the women and being a secure base for the men (responding to overt anxiety).

6. Relationship Questionnaire
Conflict behavior. A fearful attachment style was more common in men referred for treatment after assaulting their wives than in a comparison group, and this style (and to a lesser extent, the preoccupied style) was related to wives' reports of verbal abuse, and self-reports of borderline personality organization, anger, jealousy, and trauma symptoms (Dutton,Saunders,Starzomski, & Bartholomew, 1994).

7. Reciprocal Attachment Questionnaire
Conflict behavior. In a study of attachment and coercive control, a happily married group of men and two distressed groups, maritally discordant nonviolent and maritally discordant violent, were assessed, (Rathus, 1994). The distressed groups differed from the happily married group on reciprocity, but did not differ from each other. Separation anxiety and severe discord in the family of origin predicted the use of controlling behaviors to maintain proximity to the partner in the distressed groups.

How do the measures of adult attachment relate to one another?
Testing theoretical constructs is based on methodology. Therefore it is important to know whether the measures which purport to assess adult attachment are in fact measuring the same or different phenomena. Studies which have utilized more than one assessment of adult attachment are limited in number. The studies reviewed above suggest that a number of them measure very different constructs or aspects of adult attachment, and studies which utilize more than one measure tend to demonstrate important differences rather than similarities among the measures.

The Adult Attachment Interview (Main & Goldwyn and Q-sort scoring) and Adult Attachment Styles (AAS)
In a study of two groups of young adults, one psychiatrically hospitalized as young adolescents and a comparison group (Borman-Spurrell et al., 1994; Borman-Spurrell et al., submitted for publication), the AAS was compared with the AAI scored with the original system and with the q-sort. The two interview scoring techniques were found to be highly related, although the q-sort method does not assess unresolved status.

Neither interview-based classification system was associated with self-report of attachment style. Interview methods classified the previously hospitalized sample as 10-12% secure, whereas 45% of that sample classified themselves as secure with the AAS. The same pattern was observed in the comparison group (66% secure AAS versus 48% secure AAI). The finding that self-report AAS and the AAI are not related is consistent with reports from a number of other studies which have administered both measures (Crowell et al., 1993; de Haas et al., in press; Holtzworth-Munroe, 1993b; Kobak & Hazan, 1992; Treboux et al., 1994).

The measures were also found to have different correlates. Borman-Spurrell and colleagues (in preparation) examined the AAI and AAS with respect self-reports of adjustment, others reports of social behavior, assessment of ego development, and ego-resiliency and undercontrol. Self-reports of attachment style were related to self-reports (self-esteem, loneliness, etc.), but not others' reports or assessments of behavior (ego development and delinquency). The Main and Goldwyn method of scoring related to outside raters' views of subjects' adjustment and of behavior, but did not relate to self-reports. The q-sort assessment of the AAI was associated with self- and other reports of adjustment and behavior.

Adult Attachment Q-sort, Adult Attachment Styles, and the Marital Q-sort
The AAI q-sort scoring and a scale form of the AAS were used in a study of couples' interactions, and theq-sort related to marital adjustment and to models of the self in marriage assessed with the marital q-sort (Kobak & Hazan, 1992). In another study, subjects rated as secure were more accurate in their models of themselves on the marital q-sort (assessed by agreement between spouses) (Kobak & Hazan, 1991). Men rated insecure overall and insecure/activating scored the lowest in marital adjustment. Husbands rated as secure were more supportive in a problem solving interaction task. Results were less clear for the women: Overall security in women was related to better emotional regulation and communication, and husbands' reports of marital adjustment, than an activating strategy combined with security. In contrast, AAS comfort with closeness was unrelated to marital functioning. However, anxiety about abandonment was related to poor marital adjustment in men, and rejection and hostility toward wives. The wives of these anxious men also tended to have less accurate models of the marriage (marital q-sort) and were less supportive in the problem solving task. In examining the relation between the two measures and what they predicted, the attachment styles scales were found to be "relatively independent of the AAI strategies" (p. 30).

Attachment Interviews: Family and Peer Relationships, and the Relationship Questionnaire (Bartholomew & Horowitz, 1991).
Batholomew and Horowitz (1991) utilized two adult attachment interviews, one about family and one about peers. The ratings from the two interviews were related to each other, but were not identical; eg., they predicted different aspects of interpersonal problems. Thus, the authors feel that assessments of peer/adult-adult relationships cannot be viewed as equivalents or direct derivations of childhood/ family relationships. The self-classification questionnaire was found to correspond to peer interview assessments using the four dimensional system.

Relationship Questionnaire and Adult Attachment Styles
The four category model of attachment (Bartholomew & Horowitz, 1991) has been compared to Hazan and Shaver's (1987) three category model (Brennan et al., 1991). The two methods are highly related using either self-selection of category or rating scale methodology. The fearful group (RQ) most often designated themselves as ambivalent with the AAS, and avoidant (AAS) subjects classified themselves primarily as fearful rather than dismissing (RQ).

The Adult Attachment Interview and Current Relationship Interview
Engaged couples (Owens et al., in press) were interviewed with the CRI and the AAI. Correspondence between the AAI and the CRI classifications was 61%, ns, using a secure-insecure classification system. However, a subject's AAI classification was related to the partner's CRI. Further investigation revealed that this correspondence was related to a subject describing the behavior of the partner in a way that paralleled the partner's description of his or her own parents, eg., if the partner described his parent as a good secure base, he was described as being a good secure base by the subject. This finding supports the idea of bi-directional influence in relationship formation; a person with an insecure AAI classification presents incoherent /inconsistent behavior as a partner, and

thus is a poor partner in the co-construction of an understanding of the relationship.

Examining the predictive abilities of the AAI and CRI with respect to reports of the marital relationship, the pre-marital CRI predicted feelings of commitment and intimacy, and self and partner verbal and physical aggression 18 months later (Crowell et al., 1995). It was not associated with feelings of passion. The relation between the AAI and marital variables was mediated by CRI security. In addition, the AAI directly predicted feelings of intimacy, threats to abandon the partner, the partner's threats to abandon the subject, and partner's physical aggression.

Discussion
What does attachment theory say about assessment?
Bowlby wrote ...."Both the nature of the representational models a person builds .... and also the form in which attachment behavior becomes organized are regarded...as being the results of learning experiences that start during the first year of life and are repeated almost daily throughout childhood and adolescence. On the analogy of a physical skill..., both the cognitive and action components ...become so engrained (in technical terms, over-learned) that they come to operate automaticly and outside awareness" (p. 55) (Bowlby, 1980). Thus an individual would not need to fully reappraise past experiences in every new situation, but could act quickly and automatically in response to potential danger based upon a mental representation of the attachment relationship between caregiver and the self (Bretherton, 1985).

Working models which develop out of repeated interactions and experiences with attachment figures are presumed to act as a filter for later experiences in relationships. In the case of the so-called insecure representations, they are felt to exclude certain information from awareness in adaption to attachment figures who are unresponsive and/or inconsistent. This protective strategy is felt to generalize across relationships (Bretherton, 1985; Cassidy & Berlin, 1994; Crowell & Feldman, 1988; Main, 1981; Main, 1991).

The working models element of attachment theory has implications for the assessment of attachment relationships. It suggests that self-reports can capture the individual's conscious feelings and perceptions about relationships, but that many individuals have limited direct awareness of their attachment representations and strategies. Narrative or lexical techniques which assess factors which lie outside of the individual's awareness would be expected to better tap attachment working models and subsequent attachment-specific behaviors.

What can be said about adult attachment based on studies using different measures?
The attachment measures reviewed are different in their emphases and correlates, and are not equally well validated. Care should be exercised when discussing the results of studies which use adult attachment measures as unfortunately the shared terminology implies considerable overlap of meaning which is not supported by the research. Overall the research supports the idea that attachment is a relevant aspect of close adult relationships, but operationalizing the adult attachment behavior system remains an important area of investigation.

The AAI (George et al., 1985) is a retrospective account of childhood attachment experiences which the adult is asked to integrate into his/her personality development. It is the only measure of adult attachment which utilizes access to memory as part of the scoring system. Hence it lends itself to examination by cognitive psychologists interested in the development of memory and narrative abilities, the interaction between the two, and the implications for behavior. It is most strikingly related to parent-child attachment relationships, but has interesting correlates with behavior and feelings in adult partnerships. It shows correspondence to social competence and behavioral pathology (eg., aggression, hostility, delinquent behaviors), but is less clearly linked to feelings or symptoms of distress. A strength of the AAI is its good discriminant validity, an issue which has not been specifically addressed with the other measures. Attachment theory is most interesting (and probably most useful if it is to be applied in any clinical way) if it informs us about particular aspects of human relationships, albeit extremely important aspects, but is not synonomous overall good functioning or adaptation.

The Peer and Family Attachment Interviews (Bartholomew & Horowitz, 1991) similarly draw upon elements beyond the immediate content of the interview. The interviews have different correlates, and there is an emphasis

on discrimination of individual differences and the relation of attachment within and between different types of relationships (Bartholomew, 1994; Bartholomew & Horowitz, 1991). However, the Family Interview has not been used as extensively as the Peer Interview and the Relationship Questionnaire, and unfortunately this limits our understanding of how the systems relate to one another. This scoring system has been used in a study with the AAI, and hence we do not know the relation between these interviews which utilize similar questions but very different approaches to scoring.

The AAS (Hazan & Shaver, 1987) and its adaptations are self-report measures of feelings and perceptions of relationships, and they relate to other self-reports about adult relationships. They are associated with self-reports of anxiety and depressive symptoms, and many aspects of self-perceived social competence, but correspond less well to others' reports of deviant or pathological behavior. The few studies which examine the AAS with respect to behavior, eg., (Hazan & Zeifman, 1994; Kobak & Hazan, 1992; Mikulincer & Nachshon, 1991; Simpson,Rholes, & Nelligan, 1992) suggest interesting relations between self-perceptions and relationship behavior. There is some suggestion that these measures assess the dynamics of current relationships or at least are strongly influenced by them (Bartholomew, 1994), and that rather than being attachment specific, they assess a more general personality trait (de Haas et al., in press).

The marital q-sort, the CRI, and the Reciprocal Attachment measure are different from the other measures described as they assess aspects of the attachment behavior system within specific current relationships. The CRI and marital q-sort have associations with attachment behaviors in those relationships, and also have connections to the AAI, which is presumably an assessment of a generalized or prototypic model of attachment. These two measures have not been utilized in the same sample to know if they are equivalent or not.

Future issues related to adult attachment

Many issues remain for the study of adult attachment and the role of the attachment behavior system across the life span. Attachment theory itself can be enriched and refined by exploring such issues. As will surely be clear to the reader, our own bias is to explore attachment as a very specific developmental phenomenon which allows us to understand fundamental yet specific aspects of close relationships. Given this perspective, the continued exploration of the prototype hypothesis is of interest, and in particular, how past attachment experiences of both partners influence the relationship. There appear to be interesting differences between men and women in the correlates of attachment and how elements of past experience are relevant for each sex. The reciprocal nature of the attachment relationship between partners lends an increased complexity to the attachment behavior system in adults which deserves further exploration including understanding of the developmental processes which lead to the capacity to serve as a secure base.

The attachment behavior system is closely linked to behavior, to emotional expression, and to cognitive processes associated with memory and narrative production. Among other things, knowledge of the mechanisms which connect these systems may help us to understand what working models are, how they develop, and how they might evolve with experience, particularly with a partner. Perhaps the most important conclusion to this review is that collaborations across disciplines in research on adult attachment are vital at this point in time and provide many exciting opportunities for research investigating methodological issues, theoretical issues, particularly developmental processes, and mechanisms which connect basic processes.

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