CHAPTER 26

Measurement of Individual Differences in Adolescent and Adult Attachment

JUDITH A. CROWELL
R. CHRIS FRALEY
PHILLIP R. SHAVER

Attachment theory is a lifespan developmental theory. According to Bowlby (1969/1982), human attachments play a "vital role ... from the cradle to the grave" (p. 208). Ainsworth (1989) devoted her American Psychological Association Distinguished Scientific Contribution Award address to "attachments beyond infancy," and included discussions of adolescents' and adults' continuing relationships with parents, their relationships with especially close friends, and the role of attachment in heterosexual and homosexual "pair bonds." Although Bowlby and Ainsworth clearly acknowledged the importance of the attachment system across the lifespan, they provided relatively few guidelines concerning its specific function and expression in later life.

Early research on attachment followed Bowlby's and Ainsworth's primary focus on young children and explored the developmental roots of the attachment system, examining infants' attachment to their parents, especially their mothers. (These studies are reviewed in many other chapters in this volume.) Beginning in the mid-1980s, the groundwork was laid for examining the attachment system in older children and adults, and several new lines of research emerged. Following an interest in attachment representations, George, Kaplan, and Main (1984, 1985, 1996) created the Adult Attachment Interview (AAI) "to assess the security of the adult's overall working model of attachment, that is, the security of the self in relation to attachment in its generality rather than in relation to any particular present or past relationship" (Main, Kaplan, & Cassidy, 1985, p. 78). As explained below, the AAI assesses adults' representations of attachment based on their discussion of childhood relationships with their parents, and of those experiences' effects on their development as adults and as parents.

At the time the AAI was being developed, Pottharst and Kessler (described in Pottharst, 1990) created an Attachment History Questionnaire (AHQ) to assess adults' memories of attachment-related experiences in childhood (e.g., separation from parents, quality of attachment relationships). In a separate research effort, Armsden and Greenberg (1987) developed the Inventory of Parent and Peer Attachment (IPPA) to assess the perceived quality of adolescents' current relationships with parents and peers. West and Sheldon-Keller (1994; West, Sheldon, & Reiffer, 1987) developed two self-report instruments, the Reciprocal Attachment Questionnaire for Adults and the Avoidant Attachment Questionnaire for

Adults, to assess individual differences in primary attachment in adulthood. Also at about this time, Hazan and Shaver (1987; Shaver, Hazan, & Bradshaw, 1988) began to consider the applicability of attachment theory in general, and of Ainsworth's infant classification scheme in particular, to the study of feelings and behavior in adolescent and adult romantic relationships.

Given the independence of these groups of investigators, and their different domains of interest and varied professional backgrounds, the lines of research they initiated developed in different ways. Each inspired variations and offshoots, so that today there are many different measures of adolescent and adult attachment—as well as a great deal of confusion about what they measure, what they are supposed to measure, and how they are related (if at all) to each other. There have been advances in the measurement literature in recent years, and guidelines can now be proposed for researchers undertaking studies of adolescent or adult attachment. Evidence continues to build (e.g., Roisman, Holland, et al., 2007) that the different kinds of measures do not converge empirically, even though they were all inspired by attachment theory and sometimes relate similarly to outcome variables (as noted in several chapters in this volume). Moreover, not all measures can be used interchangeably in research, and reviewers of attachment studies need to be clear about which measures yield which findings. Choosing an appropriate measure requires careful thought about the goals of one's study and its foundation in the literature.

This chapter begins with a brief discussion of attachment theory, especially elements that are key to understanding the attachment system in adults, and hence to assessing it. The AAI and other narrative measures derived from the developmental tradition within attachment research are discussed in the next section (and the AAI is described in more detail by Hesse, Chapter 25, this volume). After a brief section on behavioral assessments of adult attachment, the next section deals with the AHQ, the IPPA, and the Reciprocal and Avoidant Attachment Questionnaires. These instruments are considered in a single section because they all use a self-report methodology, but none is meant to capture the attachment patterns identified by Ainsworth, Blehar, Waters, and Wall (1978) in the Strange Situation. The following section deals with some of the self-report measures of romantic attachment that grew out of Hazan and Shaver's (1987) attempt to apply Ainsworth's discoveries to the study of romantic relationships. The final section summarizes the overlaps and distinctions among measures developed in different lines of research on adolescent and adult attachment, and provides guidelines for future research.

ADULT ATTACHMENT: THEORETICAL ISSUES

The title of this chapter identifies two ideas from attachment theory that are critical to measurement. The first idea is that the attachment system is normative—that is, relevant to the development of all people, and active and important in adult life. The second idea is that there are individual differences in attachment behavior and the working models that underlie it.

Adult Attachment as Normative

Although some of Bowlby's original inspiration for attachment theory came from his work as a clinician, in developing the theory he primarily drew from research in ethology, observations of animal behavior, and cognitive psychology. He described the attachment behavioral system as an evolutionarily adaptive motivational–behavioral control system. The attachment system has the goal of promoting safety in infancy and childhood through the child's relationship with an attachment figure or caregiver (Bowlby, 1969/1982). Attachment behavior is activated in times of danger, stress, and novelty, and has the goal of gaining and maintaining proximity and contact with an attachment figure. Hence the behavioral manifestations are context-specific (evident in times of danger or anxiety), although the attachment system is considered active at all times, continuously monitoring the environment and the availability of attachment figures (Ainsworth et al., 1978; Bretherton, 1985). The child can confidently explore the environment with the active support of a caregiver, secure in the knowledge that this attachment figure is available if any need or question should arise. Ainsworth et al. (1978) termed this interaction between child and caregiver the "secure-base phenomenon," a concept central to attachment theory.

Bowlby (1969/1982) hypothesized that the attachment relationship in infancy is similar in nature to later love relationships, and he drew few distinctions among those relationships—be they child to parent, partner to partner, or aging parent to an adult child who is taking a caregiving role.

Ainsworth (1991) highlighted the function of the attachment behavioral system in adult relationships, emphasizing the secure-base phenomenon as the critical element. She stated that a secure attachment relationship is one that facilitates functioning and competence outside of the relationship: 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" (1991, p. 38).

Attachment relationships are distinguished from other adult relationships in providing feelings of security and belonging, without which there is loneliness and restlessness (Weiss, 1973, 1991). This function is distinct from aspects of relationships that provide guidance or companionship; sexual gratification; or opportunities to feel needed or to share common interests or experiences, feelings of competence, or alliance and assistance (Ainsworth, 1985; Weiss, 1974). The behavioral elements of attachment in adult life are similar to those observed in infancy, and an adult shows 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 (Shaver et al., 1988; Weiss, 1991). Finally, grief is experienced following the loss of an attachment figure (Bowlby, 1980; Shaver & Fraley, Chapter 3, this volume).

A major difference between adult–adult attachment and child–parent attachment is that the attachment behavioral system in adults works reciprocally. Adult partners are not usually placed permanently in the role of "attachment figure/caregiver" or "attached individual/care receiver." Both attachment and caregiving behavior are observable in adults, and partners shift between the two roles (Ainsworth, 1991; Kunce & Shaver, 1994; Shaver et al., 1988). The potential for flexible reciprocity adds complexity to the measurement of adult attachment.

Individual Differences and Mental Representations or Working Models

The study of attachment in adults has focused largely on individual differences in the organization of attachment behavior and in expectations regarding attachment relationships, rather than on normative developmental aspects of the attachment system. The idea of individual differences emerged from the work of Ainsworth and colleagues (1978), who broadly characterized the patterns of attachment as "secure" and "insecure" (which she sometimes called "anxious"). In addition to the security–insecurity distinction, Ainsworth and colleagues drew a second distinction between "avoidance and conflict relevant to close bodily contact" (p. 298)—that is, the avoidant and resistant behaviors that distinguish two of the major insecure patterns. It is important to note that individual differences in attachment security do not represent differences in strength or quantity of attachment: "The most conspicuous dimension that has emerged so far is not strength of attachment but security vs. anxiety in the attachment relationship. This does not imply substitution of degree of security for degree of strength" (Ainsworth et al., 1978, p. 298).

Differences among attachment patterns in infancy are thought to develop primarily from different experiences in interaction with an attachment figure, rather than to be influenced by genetics, child temperament, or other child characteristics (Ainsworth et al., 1978; Finkel & Matheny, 2000; Gervai et al., 2005; Lakatos et al., 2000; see Vaughn, Bost, & van IJzendoorn, Chapter 9, this volume). The secure pattern characterizes the infant who seeks and receives protection, reassurance, and comfort when stressed. Confident exploration is optimized because of the support and availability of the caregiver. The child comes to feel secure with the attachment figure; hence the behavioral system corresponds closely with cognitions and the expression of emotion in the context of attachment-related experiences. The two major insecure patterns ("avoidant" and "ambivalent" or "resistant") 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 evolves to fit or complement the attachment figure's behavior; in other words, it is strategic and adaptive within the context of that relationship (Main, 1981, 1990). However, the need to attend to the caregiver in this anxious, strategic way, which compromises exploratory behavior, is potentially maladaptive outside that particular relationship.

Current theory and research on adult attachment draw heavily on Bowlby's concept of "attachment representations" or "working models." Importing ideas from cognitive psychology, Bowlby (1973, 1980) hypothesized that individuals develop representations of the functioning and significance of close relationships. These representations, or models, consist of a person's beliefs and expectations about how attachment relationships operate and what he or she gains from them. As noted above, individual differences emerge in the expression of attachment behavior in the context of attachment relationships. Patterns of attachment develop in the course of behavioral interactions between an infant/child and parents (Bowlby, 1980), and reflect expectations about the child's own behavior and a parent's likely behavior in various situations. Cognitive–affective structures develop that mirror the behavioral patterns. They are called "working models" or "representations" because they are the bases for action in attachment-related situations, and because in principle they are open to revision as a function of significant attachment-related experiences. The models are relatively stable and can operate automatically without the need for conscious appraisal. They guide behavior in relationships with parents, and they influence expectations, strategies, and behavior in later relationships (Bretherton, 1985; Bretherton & Munholland, Chapter 5, this volume; Main et al., 1985).

Bowlby's incorporation of mental representations into attachment theory allows for a lifespan perspective on the attachment behavioral system, providing a way of understanding developmental change in the expression of attachment and its ongoing influence on development and behavior in relationships. An individual's model of attachment involves stable postulates about the roles of both parent and child in the relationship, because individual differences in attachment stem from a particular caregiving environment. In other words, working models are models of attachment relationships (Bretherton, 1985). Bowlby (1973) wrote:

> In the working model of the world that anyone builds, a key feature is his notion of who his attachment figures are, where they may be found, and how they may be expected to respond. Similarly, in the working model of the self that anyone builds a key feature is his notion of how acceptable or unacceptable he himself is in the eyes of his attachment figures. . . . Confidence that an attachment figure is . . . likely to be responsive can be seen to turn on two variables: (a) whether or not the attachment figure is judged to be the sort of person who in general responds to calls for support and protection; (b) whether or not the self is judged to be the sort of person towards whom . . . the attachment figure is likely to respond in a helpful way. Logically these variables are independent. In practice, they are apt to be confounded. As a result, the model of the attachment figure and the model of the self are likely to develop so as to be complementary and mutually confirming. (pp. 203–204)

Bowlby (1973, 1980) also wrote about the problems that arise when a child is presented with a negative view of self and other, and/or with incompatible data about his or her experiences—that is, when the child's firsthand experience of the attachment figure is in opposition to what the parent tells the child about the meaning of the parental behavior. Because information relevant to characterizing an attachment relationship comes from multiple sources (Bowlby, 1973), a child may receive conflicting information which challenges the development of a coherent representation. Bowlby (1973) and Main (1981, 1990, 1991), among others, have described the strategies required to maintain cognitive organization in the face of stress and conflicting information. These secondary strategies (Main, 1990) (as opposed to the primary strategies of approach, contact seeking, and contact maintenance when the attachment system is activated) are defensive maneuvers that require "manipulating the level of output usually called for by the [attachment] system—[and, in addition, manipulating cognitive processes to maintain] a given attachment organization" (p. 48). Such strategies develop because there are inconsistencies, incompatibilities, and a lack of internal connectedness in the elements of the attachment representation (Bowlby, 1973; Main, 1990, 1991). Strategies may include avoidance of the attachment figure in stressful situations (Main, 1981); oscillation between the two viewpoints (i.e., "child good, parent bad," "child bad, parent good"); and acceptance of the parent's view while denying one's own experience (Bowlby, 1973).

A central idea in attachment theory is that early parent–child relationships are prototypes of later love relationships (E. Waters, Kondo-Ikemura, Posada, & Richters, 1991). Bowlby did not claim that there is a critical period in infancy that has implications across the lifespan (the most extreme interpretation of the prototype hypothesis), but rather that there is a strong tendency toward continuity in parent–child interactions, which affects the continuing development of the attachment behavioral system. That is, in addition to having effects on individual personality characteristics, child–parent relationships influence subsequent patterns of family organization and therefore play a role in the intergenerational transmission of family attachment patterns. Much of adult attachment research has been based on the assumption that there are parallel individual differences in infant and adult patterns of attachment and attachment representations (e.g., Hazan & Shaver, 1987; Main et al., 1985; Mikulincer & Shaver, 2007). However, different ideas about the origins of adult attachment patterns, and disagreement about the structure of the attachment system in adulthood, are responsible for some of the confusion in the literature on adult attachment.

Bowlby (1969/1982) also discussed change in attachment patterns, an issue relevant to adult patterns of attachment. In childhood, if an attachment pattern changes, it is assumed to have been caused by a corresponding change in the quality of parent–child interactions (Bowlby, 1969/1982). Bowlby also hypothesized that attachment patterns can change in later life through the influence of new attachment relationships and the development of formal operational thought. This combination of events allows the individual to reflect on and reinterpret the meaning of past and present experiences (Bowlby, 1973, 1980, 1988)—something that can happen in an individual's self-analysis, within a couple relationship (such as marriage), or as a consequence of psychotherapy. In a couple relationship, partners can co-construct new attachment representations, which take into account both partners' attachment representations as well as other elements of the relationship (Crowell, Treboux, & Waters, 2002; Oppenheim & Waters, 1995; Owens et al., 1995; Treboux, Crowell, & Waters, 2004). This may or may not lead to full representational change in an individual's original model of attachment.

In general, researchers have attributed the development of adult attachment patterns to three broad sources, although the relative importance and influence of the three sources are debated and are critical research issues (see, e.g., Fraley, 2002; Owens et al., 1995; E. Waters et al., 1991). The sources are (1) parent–child attachment relationships; (2) peer and romantic relationship experiences, including exposure to one's parents' marriage; and (3) a current adult attachment relationship. There is evidence that the attachment relationship between adult partners takes time to develop, and that the experience of the parents' marriage and the specific representation of the current adult relationship are integrated over time into the generalized representation that had developed earlier within the relationship with the parents (Crowell, Treboux, Gao, et al., 2002; Crowell, Treboux, & Waters, 2002; Treboux et al., 2004; Zeifman & Hazan, Chapter 20, this volume).

In summary, two core propositions in attachment theory are key to understanding attachment in adulthood and to evaluating existing measures of adult attachment: The attachment system is active in adults, and there are individual differences in adult attachment behavior that have their foundations in attachment experiences and are embodied in attachment representations.

NARRATIVE ASSESSMENTS OF ADULT ATTACHMENT

The scoring systems of the measures described in this section, and in the following brief section on behavioral assessments, are based on the concept of attachment security, defined as the effectiveness of an individual's use of an attachment figure as a *secure base* from which to explore and a *safe haven* in times of distress or danger (secure). The use of narratives to assess attachment is based on the idea that "mental processes vary as distinctively as do behavioral processes" (Main et al., 1985, p. 78), and that organized behavioral and representational processes are reflected in coherent, organized language. Narrative assessments ultimately derive their validity from observations of attachment behavior in natural settings. Each of the measures discussed here was designed to assess the continuum from secure to insecure, and, secondarily, to assess differences among insecure strategies.

Adult Attachment Interview

In what Main and colleagues (1985) called "a move to the level of representation" (in contrast to the previous focus on behavior in the assessment of parent–child attachment relationships), Main and her coworkers developed a semistructured interview for adults about childhood attachment experiences and the meaning currently assigned by an individual to past attachment-related experiences (George et al., 1984, 1985, 1996). The AAI and its scoring system are based on several key ideas about attachment, including the ideas that working models operate at least partially outside of awareness; that they are based on attachment-relevant experiences; that infants begin to develop models that guide behavior in attachment relationships in the first year of life; that representations provide guidelines for behavior and affective appraisal of experience; that formal operational thought allows the individual to observe and assess a given relationship system, and hence that the model of the relationship can be altered without an actual change in experiences in the relationship; and that the models are not templates, but are processes that serve to "obtain or to limit access to information" (Main et al., 1985, p. 77). In addition, the scoring system is linked to Bowlby's and Main's ideas about secondary strategies, defensive processes, and incompatible models described earlier.

An adult is interviewed about his or her general view of the relationship with parents; ordinary experiences with parents in which the attachment system is presumed to be activated (upset, injury, illness, separation); experiences of loss; and finally the meaning that the adult attributes to these experiences in terms of the parents' behavior and the development of the interviewee's adult personality and behavior as a parent (if applicable). The resulting narrative is transcribed. The transcript is then examined for material directly expressed by the individual, and also for unintended qualities of discourse, such as incoherence and inconsistency. Scoring is based on (1) the coder's assessment of the individual's childhood experiences with parents; (2) the language used by the individual; and (3) most importantly, the individual's ability to give an integrated, believable account of experiences and their meaning. The speaker's language and discourse style are considered reflections of the "current state of mind with respect to attachment" (Main & Goldwyn, 1984; Main, Goldwyn, & Hesse, 2003; Main et al., 1985; Hesse, Chapter 25, this volume).

Main and Colleagues' Scoring System

The AAI scoring system (e.g., Main & Goldwyn, 1984; Main et al., 2003) was developed by examining 44 parental interviews for which the Strange Situation classifications of the interviewees' infants were already known, and identifying qualities of content and discourse that distinguished among them. Hence the AAI was expressly developed to capture the issues tapped by the Strange Situation, especially an individual's ability to use an attachment figure as a secure base. The system has been refined over the past 20-plus years, but it has not yet been published. Extensive training is required to administer and score the interview.

Scoring is done from a transcript, using scales that characterize the individual's childhood experiences with each parent *in the opinion of the coder*. There are two sets of scales: parental behavior scales and state-of-mind scales. Parental behavior is rated from the specific memories and descriptions given of parental behavior, and not from the general assessment of the parenting given by the individual. The parental behavior scales, rated separately for mother and father, are: loving, rejecting, neglecting, involving, and pressuring. The state-of-mind scales assess discourse style and particular forms of coherence and incoherence: idealization, insistence on lack of recall, active anger, derogation, fear of loss, metacognitive monitoring, and passivity of speech. Using these ratings and the overall coherence of the transcript, the coder also assigns scores for coherence of transcript and of mind. The concept of "coherence" is based on Grice's (1975) maxims regarding discourse. High coherence means that the narrative adheres to Grice's maxims of *quality* (it is believable, without contradictions or illogical conclusions); *quantity* (enough, but not too much, information is given to permit the coder to understand the narrative); *relevance* (the individual answers the questions asked); and *manner* (the individual uses fresh, clear language rather than jargon, canned speech, or nonsense words).

Patterns of scale scores are used to assign an adult to one of three major classifications: a secure category ("autonomous") or one of two insecure categories ("dismissing" or "preoccupied"), with the coherence scales being used to make the secure–insecure distinction. The categories parallel the three infant attachment patterns identified by Ainsworth et al. (1978), and the discourse style reflects the behavioral elements in infant attachment patterns.

Individuals classified as secure-autonomous maintain a balanced view of early relationships, value attachment relationships, and view attachment-related experiences as influential in their development. In parallel to the direct approach of the secure infant, the autonomous adult's approach to the interview is open, direct, and cooperative, regardless of how difficult the material is to discuss. The interview itself contains consistent, believable reports of behavior by parents; simply put, the adult's general descriptions of the parenting he or she received match the specific memories given of parental behavior. Because security is inferred from coherence, any kind of childhood experience may be associated with being classified as autonomous, although in many cases parental behavior is indeed summarized as loving, and there are clear and specific memories given of loving behavior by the parents.

The two major insecure classifications are associated with incoherent accounts, meaning that interviewees' assessment of experience are not matched by their descriptions of parental behavior. There is little support provided for a parent's serving as a secure base; and discourse, whether dismissing or preoccupied, mirrors the lack of exploration and inflexibility of insecure infants. The classifications reflect the strategies used to manage the anxiety of having a parent who failed in this regard. Corresponding to the behavior of avoidant infants in the Strange Situation, adults classified as dismissing are uncomfortable with the topic of the interview, deny the impact of early attachment relationships on their personality development, have difficulty recalling specific events, and often idealize experiences. The classification is associated with descriptions of rejection in the coder's opinion (pushing a child away in attachment-activating situations) in the context of an adult's giving an overarching assessment of having loving parents. Just as resistant infants are ambivalent in the Strange Situation, adults classified as preoccupied display confusion or oscillation about past experiences, and descriptions of relationships with parents are marked by active anger and/or passivity. The preoccupied classification is associated with involving, even role-reversing parenting, in which the child needed to be alert to parental needs rather than the reverse.

Individuals may be classified as "unresolved," in addition to being assigned one of the three major classifications. Unresolved adults report attachment-related traumas of loss and/or abuse, and manifest confusion and disorganization in the discussion of that topic. The unresolved classification may be given precedence over the major classification in categorizing the individual, and is considered an insecure classification. A "cannot classify" designation is assigned when the transcript does not fit any of the major classification categories, most commonly when scale scores reflect elements rarely seen together in an interview (e.g., high idealization of one parent and high active anger toward the other) (Hesse, 1996). Such interviews are often markedly incoherent, which is taken to indicate a high degree of insecurity. Fremmer-Bombik and colleagues have devised an algorithm for classification that is discussed by Hesse (Chapter 25, this volume).

Kobak's Q-Sort Scoring System

The Adult Attachment Q-Sort is an alternative method of scoring the AAI and was derived from the original scoring system (Kobak, 1993; Kobak, Cole, Ferenz-Gillies, Fleming, & Gamble, 1993). Its underlying structure parallels the Strange Situation and Main and colleagues scoring systems, but it emphasizes the relation between emotion regulation and attachment representations. The interview is scored from a transcript according to a forced distribution of descriptors, and yields scores for two conceptual dimensions: "security–anxiety" and "deactivation–hyperactivation." Security is inferred from coherence and cooperation within the interview, and often (although not necessarily) from memories of supportive attachment figures (in the coder's opinion). Deactivation corresponds to dismissing strategies, whereas hyperactivation corresponds to the excessive detail and active anger seen in the transcripts of many preoccupied subjects. These strategies lie at opposite ends of a single dimension, which is assumed to be orthogonal to the security–anxiety (insecurity) dimension. The AAI transcript is rated by two or more coders, using 100 Q-sort items and instructions that impose a forced normal distribution along a 9-point continuum (Kobak et al., 1993). The sort is correlated with an expert-based prototypic sort for each dimension. The dimensional scores can be used to classify the adult into the categories of the original system, and approximately 80% of individuals receive the same classification with the Q-sort system as with the original system (kappa = .65). There is more overlap on the deactivation–hyperactivation dimension than on the security–anxiety dimension (Kobak et al., 1993). The scoring system was created without an attempt to include the unresolved or cannot classify categories.

Fonagy and Colleagues' Reflective Functioning Scoring System

A third method of coding the AAI departs conceptually from the original classification and Q-sort systems. Fonagy, Steele, Steele, Moran, and Higgitt's (1991) system assesses "reflective functioning"—that is, an adult's quality of understanding his or her own and another's intentions, motivations, and emotions. In a study of 200 parents, the AAI self-reflection function correlated highly with AAI coherence, and was a stronger predictor of infant security. This study and many subsequent ones providing evidence for the validity and utility of measures of reflective function are reviewed by Fonagy, Gergely, and Target (Chapter 33, this volume).

Distribution of Classifications

In a meta-analysis (Bakermans-Kranenburg & van IJzendoorn, 1993), the distribution of AAI classifications in nonclinical samples of women, men, and adolescents was 58% autonomous, 24% dismissing, and 18% preoccupied. About 19% of individuals also received an unresolved classification in association with a major classification; about 11% of people classified as autonomous, 26% of the dismissing group, and 40% of the preoccupied group were also classified as unresolved. Of people classified as unresolved, 38% had a major classification of autonomous, 24% of dismissing, and 38% of preoccupied. The base rate of insecurity in clinical and at-risk samples was much higher: 8% autonomous, 26% dismissing, 25% preoccupied, and 40% unresolved. There were no gender differences in distribution of classifications (van IJzendoorn & Bakermans-Kranenburg, 1996).

Stability and Discriminant Validity

High stability of attachment classifications (78–90% for three classification groups across periods ranging from 2 weeks to 6 years) has been observed in a number of studies using the original scoring system (e.g., kappa = .73, 86%, over 21 months; Crowell, Treboux, & Waters, 2002). (See also Allen, McElhaney, Kuperminc, & Jodl, 2004; Bakermans-Kranenburg & van IJzendoorn, 1993; Benoit & Parker, 1994; Sagi et al., 1994.) The secure classification is especially stable, but the unresolved classification is often unstable. Change from insecure to secure status across the transition to marriage has been associated with positive feelings and coherent cognitions about the relationship with the partner and living away from the family of origin (Crowell, Treboux, & Waters, 2002).

Because the ability to speak coherently about attachment could conceivably be based on non-attachment-related cognitive abilities, such as intelligence or memory, the discriminant validity of the original AAI scoring system has been investigated. Security is minimally associated with intelligence in most studies and is not significantly associated with memory, social desirability, or discourse style on an unrelated topic (Bakermans-Kranenburg & van IJzendoorn, 1993; Crowell et al., 1996; Sagi et al., 1994).

Discriminant analysis has enabled AAI security to be represented as a continuous variable (Fyffe & Waters, 1997). The coder rating of "coherence of transcript" correlated .96 with the security function. Although this finding suggests that researchers can assess AAI security simply by reliably coding coherence of transcript, this is difficult because the other scales are used in establishing and checking the coherence rating.

Research with the AAI

The AAI had its origins in investigations of the child–parent attachment relationship, and many of the studies based on the AAI have used it for this purpose. There is a consistent link among AAI classifications, parenting behavior, and child attachment status. An increasing number of studies have used the AAI to examine attachment between adult romantic partners.

Studies of Adults as Individuals

Prospective Longitudinal Studies. To examine the idea that early attachment patterns correspond to attachment patterns in adult life, several studies have assessed the relation between infant attachment security and AAI classifications in late adolescence and young adulthood. Two studies have found a 70–75% correspondence between Strange Situation and AAI security–insecurity in late adolescents and young adults who participated as infants in studies of attachment (e.g., kappa = .44; E. Waters, Merrick, Treboux, Crowell, & Albersheim, 2000; see also Hamilton, 2000). As expected from Bowlby's ideas about change in attachment representations in childhood, lack of correspondence between infant and adult classifications was related to life stresses that significantly altered the caregiving environment, including death of a parent, life-threatening illness in subject or parent, and divorce. In a meta-analysis of all studies examining the stability of attachment, Fraley (2002) found that the continuity between security as assessed in the Strange Situation in infancy and the AAI in young adulthood ranged from $r = -.10$ to $r = .50$. Precise explanations of cross-study differences in observed continuity remain to be tested and replicated, but it seems likely that the effort to explain stability and instability will be successful.

In other words, discontinuity will turn out to be "principled" or lawful, rather than mysterious or haphazard.

The Dismissing Strategy. Adults classified as dismissing use strategies that minimize, dismiss, devalue, or deny the impact of negative attachment experiences. During the AAI, college students who used dismissing strategies showed an increase in skin conductance (Dozier & Kobak, 1992). Despite efforts to minimize negative aspects of childhood and the importance of early relationships, they showed signs of physiological distress when challenged with these topics. Indeed, adults classified as dismissing underreport distress, psychological symptoms, or problems in interpersonal relationships, compared with the reports of others who know them well (Dozier & Lee, 1995; Kobak & Sceery, 1988). The strategy of avoidance or dismissal has led to difficulties in the development of self-report assessments that discriminate the AAI dismissing group from the AAI autonomous group (Crowell, Treboux, & Waters, 1999). This may be one of several reasons, discussed later in this chapter, for the lack of high correspondence between narrative and self-report measures of attachment orientation.

Adjustment and Psychopathology. Consistent relationships have been found between security and ratings of social adjustment, social support, stress, and depression; the effect sizes have varied, depending on ecological and methodological factors (Atkinson et al., 2000; Crowell et al., 1999; Kobak & Sceery, 1988). Clinical populations have a higher proportion of insecure classifications than the general population, but few specific relations between the "organized" AAI types and psychopathology have emerged (Riggs & Jacobvitz, 2002; van IJzendoorn & Bakermans-Kranenburg, 1996; van IJzendoorn et al., 1997; Wallis & Steele, 2001; Ward et al., 2001). The unresolved group, however, is overrepresented in clinical samples, and this has led to suggestions that it is more pathological than "organized" insecure groups (van IJzendoorn & Bakermans-Kranenburg, 1996).

This complex area of investigation is not discussed further here, but as Lyons-Ruth and Jacobvitz explain in Chapter 28 of this volume, it has led to important efforts to expand the AAI coding system to address a variety of trauma-related variations in AAI discourse (Koren-Karie, Sagi-Schwartz, & Joels, 2003; Lyons-Ruth, Yellin, Melnick, & Atwood, 2003, 2005; Sagi-Schwartz, Koren-Karie, & Joels, 2003).

"Earned Security." The subset of individuals classified as secure (because they value attachment and are coherent in their discussion of attachment relationships), despite their parents' being rated as unloving by coders, are termed "earned secure." There is some indication that such retrospectively defined earned-secure individuals may have had supportive parents, but because of current depression provide somewhat biased representations of their parents, which lead coders to rate the parents as relatively unloving (Roisman, Fortuna, & Holland, 2006; Roisman, Padrón, Sroufe, & Egeland, 2002). In contrast, *prospectively* defined earned secure individuals—that is, individuals who begin adulthood with an insecure AAI classification and over time become secure—are not found to have depressive symptoms, suggesting that the change is genuine (Pearson, Cohn, Cowan, & Cowan, 1994). (This issue has not yet been fully resolved, and different chapters in the present volume handle it differently. For further discussion, see Hesse, Chapter 25, this volume, and Roisman, Fraley, & Belsky, 2007.)

Studies of the Child–Parent Relationship

Attachment Classifications across Generations. A number of investigators have found high correspondence between parental AAI classifications and infant attachment assessed with the Strange Situation (kappa = .46 for three classifications; kappa = .44 for four classifications) and preschoolers' attachment assessed with home observations (Cassibba, van IJzendoorn, Bruno, & Coppola, 2004; Fonagy, Steele, & Steele, 1991; Posada, Waters, Crowell, & Lay, 1995; Sagi et al., 1992; Steele, Steele, & Fonagy, 1996; van IJzendoorn, 1992; see meta-analysis by van IJzendoorn, 1995). Mother–infant correspondence is greater than father–infant correspondence (Main et al., 1985; Miljkovitch, Pierrehumbert, Bretherton, & Halfon, 2004; Steele et al., 1996; van IJzendoorn, 1992).

Parents' AAI Classifications and Parental Behavior toward Children. Mothers classified as autonomous on the AAI are observed to be more responsive, perceptive, sensitive, and attuned to their infants in the first year of life (Adam, Gunnar, & Tanaka, 2004; DeOliveira, Moran, & Pederson, 2005; Goldberg, Benoit, Blokland, & Madigan, 2003; Grossmann, Fremmer-Bombik, Rudolph, & Grossmann, 1988; Haft & Slade, 1989; Macfie, McElwain, Houts, & Cox, 2005; Slade, Belsky, Aber, & Phelps, 1999; Ward & Carlson, 1995; Zeanah et al., 1993). Similarly, parental security of attachment is linked to parents' sensitivity with their preschool children, and to parents providing help and support during observed tasks and separations in both normative and clinical samples (Cohn, Cowan, Cowan, & Pearson, 1992; Crowell & Feldman, 1988, 1991; Crowell, O'Connor, Wollmers, Sprafkin, & Rao, 1991; Das Eiden, Teti, & Corns, 1995; Oyen, Landy, & Hilburn-Cobb, 2000); marital functioning appears to have moderating effects (Cohn, Cowan, et al., 1992; Das Eiden et al., 1995). Ratings of child symptoms by parents, teachers, and children themselves find that children of insecure parents have the highest ratings of problem behavior and child distress (Cowan, Cowan, Pearson, & Cohn, 1996; Crowell et al., 1991).

Adolescents classified as secure in the AAI are observed to have secure-base relationships with their mothers and to be more socially skilled than those classified as insecure (Allen et al., 2002, 2003; Kobak et al., 1993; see Allen, Chapter 19, this volume, for a review).

Studies of Romantic Relationships

Concordance of Attachment Status. A meta-analysis of AAI attachment classifications of 226 couples showed modest concordance (50–60%, equivalent to a kappa of .20, for three major classifications) between partners for attachment status, accounted for by the secure–secure pairs (van IJzendoorn & Bakermans-Kranenburg, 1996). Not surprisingly, this finding suggests that factors other than attachment security are active in partner selection and maintenance.

Little direct relation between the broad construct of marital satisfaction and AAI classification has been found, but reports of feelings of intimacy are related (Benoit, Zeanah, & Barton, 1989; Cohn, Silver, Cowan, Cowan, & Pearson, 1992; O'Connor, Pan, Waters, & Posada, 1995; Zeanah et al., 1993). In addition, feelings about the relationship are related to interactions among AAI status, representations of the adult partnership, marital behavior, and stressful events (Paley, Cox, Harter, & Margand, 2002; Treboux et al., 2004). Associations between attachment security and the use of physical aggression in couples' relationships are consistently obtained (Crittenden, Partridge, & Claussen, 1991; O'Connor et al., 1995; Treboux et al., 2004).

There is little correspondence between the AAI and self-reports of attachment (Roisman, Holland, et al., 2007; E. Waters, Crowell, Elliott, Corcoran, & Treboux, 2002). This is discussed further in subsequent sections of this chapter.

Couples' Interactions. In the first edition of this handbook, very little research on adult relationships and the AAI had been conducted, leading some to question whether the AAI was a measure of parent–child attachment. Happily, in the intervening years, studies have found associations between the AAI and attachment/secure-base behaviors in couples' interactions, in samples of both late adolescents and adults (Cohn, Silver, et al., 1992; Creasey, 2002; Creasey & Ladd, 2004, 2005; Crowell et al., 2002; Curran, Hazen, Jacobvitz, & Feldman, 2005; Furman, Simon, Shaffer, & Bouchey, 2002; Paley, Cox, Burchinal, & Payne, 1999; Roisman, Madsen, Hennighausen, Sroufe, & Collins, 2001; Simpson, Rholes, Oriña, & Grich, 2002; Wampler, Riggs, & Kimball, 2004; Wampler, Shi, Nelson, & Kimball, 2003). These findings provide compelling support for the AAI as an assessment of a generalized representation of attachment, rather than one that is specific to a particular type of attachment relationship.

Relationship Interviews

Several interviews have been developed to assess attachment representations within romantic partnerships (e.g., Bartholomew & Horowitz, 1991; Cowan, Cowan, Alexandrov, Lyon, & Heming, 1999; Crowell & Owens, 1996; Dickstein, Seifer, Albus, & Magee, 2004; Furman & Simon, 2006). Most are rooted in the AAI tradition of examining coherence of discourse, and the findings of relations among these interviews, the AAI, self-reports of the relationship, and observed couples' behavior are similar (Alexandrov, Cowan, & Cowan, 2005; Dickstein et al., 2004; Furman & Simon, 2006; Owens et al., 1995). Of these, the Current Relationship Interview (CRI) is the most established (Crowell & Owens, 1996; Crowell, Treboux, Gao, et al., 2002; Crowell, Treboux, & Waters, 2002; Furman et al., 2002; Owens et al., 1995; Roisman, Collins, Sroufe, & Egeland, 2005; Treboux et al., 2004). The CRI investigates the representation of attachment within an adult partnership. It was developed as a way to examine the "prototype hypothesis"—the hypothesis that adult close relationships are similar in organization to parent–child attachment relationships. More specifically, it has been used to explore the process by which a new attachment relationship may be integrated into an already existing representation of attachment, or by which a new representation develops.

As a narrative assessment, the CRI is intended to examine an individual's representation of attachment and ideas regarding the partner's and his or her own attachment behavior. The interview asks the adult for descriptions of the relationship, and for instances of the use of and giving of secure-base support in the relationship. The interview is scored from a transcript, and the subject is classified into one of three groups, according to the profile of scores on a variety of rating scales. Rating scales are used to characterize (1) the participant's behavior and thinking about attachment-related issues (e.g., valuing of intimacy and independence); (2) the partner's behavior; and (3) the participant's discourse style (e.g., anger, derogation, idealization, and overall coherence). The CRI and its scoring system parallel the AAI in structure. The secure–insecure dimension is based on coherent reports of being able to use the partner as a secure base and to act as a secure base, or the coherently expressed desire to do so. Individuals who cannot coherently discuss secure-base use and support in the interview are divided between those who avoid discussion of these behaviors or dismiss their significance, and those who appear to heighten or control the attachment elements of the relationship. CRI scoring is based on state of mind regarding attachment, as well as reports of specific attachment behaviors of secure-base support and use. These factors are given primacy in the determination of attachment security, rather than the individual's reported feelings about the relationship or the behaviors of the partner.

The secure CRI interview is characterized by coherence; that is, the participant convincingly describes his or her own and the partner's secure-base behavior, or can coherently discuss negative partner behavior. The interviewee expresses the idea that an adult attachment relationship should provide support for the individuals involved and for their joint development, whether or not the relationship is actually providing these elements. The dismissing CRI classification is given when there is little evidence that the individual views attachment, support, and comfort within the relationship as important, even if the partner is convincingly described as loving. The discourse is incoherent, in that the relationship may be "normalized." A need for autonomy and separateness within the relationship may be emphasized, and there may be a focus on concrete or material aspects of the relationship (e.g., buying a house, going on vacations). The preoccupied CRI classification is given when the subject expresses strong dependence on the partner or attempts to control the partner. The individual may be dissatisfied or anxious about the partner's ability to fulfill his or her needs, and may express ambivalence or confusion about the relationship, the partner, and/or the self, regardless of the descriptions of partner behavior.

Distribution and Concordance of Classification in Couples

Empirical evidence suggests that the distribution of classifications may vary with the developmental stage of the participants and of the relationship (e.g., Alexandrov et al., 2005; Furman et al., 2002). For example, 46% of CRI transcripts were classified as secure in a sample of young engaged adults (Owens et al., 1995), whereas in a married sample with children, 71% were classified as secure with the Couple Attachment Interview (CAI; Alexandrov et al., 2005). Concordance between partners for CRI classifications was 63% premaritally (kappa = .29) and 65% after 15 months of marriage (kappa = .30); for the CAI, the concordance was 69%.

Stability and Discriminant Validity

Security on the CRI is unrelated to intelligence, education, gender, duration of relationship, or the endorsement of symptoms of depression (Owens et al., 1995). Unlike the AAI, the CRI draws upon a current relationship and is subject to life events and partner behaviors. Hence the CRI classifications are expected to be less stable than those of the AAI, especially in the early phases of relationship development (Crowell & Waters, 1997).

Research with Relationship Interviews

Reports of Relationships and Marital Satisfaction

Individuals classified as secure with relationship interviews report greater satisfaction with their relationship, greater commitment and feelings of love overall, and fewer problems in the relationship than insecure individuals do (Alexandrov et al., 2005; Owens et al., 1995; Roisman et al., 2005; Treboux et al., 2004). Investigations consistently reveal that security assessed with relationship interviews is positively related to attachment behavior in couples' interactions (Alexandrov et al., 2005; Crowell, Treboux, Gao, et al., 2002; Furman & Simon, 2006; Roisman et al., 2005).

Correspondence with the AAI

The correlation of the security scores from concurrently obtained AAIs and CRIs is $r = .51$ (Crowell, Treboux, & Waters, 2002). Evidence suggests that the configuration of AAI and relationship interview classifications within an individual is especially predictive of marital functioning, including divorce rates early in marriage (Dickstein et al., 2004; Treboux et al., 2004). For example, Treboux and colleagues (2004) reported that individuals classified as secure on both the AAI and the CRI reported more positive feelings about the relationship, low observed and reported aggression, and divorce rates consistent with the overall mean. They appeared to tolerate stressful life events without marked change in these parameters. Individuals classified as insecure on both the AAI and the CRI were the most aggressive group, by both observation and self-report. The behaviors and negative feelings about the relationship escalated in association with stressful events. Individuals classified as AAI insecure/CRI secure reported the *most positive* feelings about their relationships and had a significantly lower divorce rate in early marriage than those with other configurations did. However, when stressed, these individuals reported negative feelings about their relationships, and their conflict behavior was more aggressive. Lastly, individuals classified as AAI secure/CRI insecure reported the *most negative* feelings about their relationships and had significantly higher divorce rates than those with the other configurations did. They did not engage in aggressive conflict behaviors, however, even when stressed.

Other Narrative Assessments

The Adult Attachment Projective (AAP) is a projective narrative technique to assess adult attachment (Buchheim, George, & West, 2003; George & West, 2001). It was developed to activate a person's attachment system by presenting one neutral picture (two children playing ball) and seven increasingly stressful attachment pictures (ranging from a lone child looking out a window to a child standing askance in a corner with hand and arm defensively extended, as if protecting him- or herself from a physical assault of some kind). The pictures are fairly simple line drawings, each allowing for a wide range of interpretations. Research participants tell or write brief stories about what is happening in each picture. The scoring system was developed with the AAI as a benchmark. It uses evaluations along three dimensions—discourse (specifically, merging self with a pictured character, and degree of narrative coherence); content (agentic self, and connectedness and synchrony with others); and defensive processing (deactivation, cognitive disconnection, and segregated systems)—to designate the familiar four adult classification groups: secure, dismissing, preoccupied, and unresolved.

In their 2001 article, which introduced the AAP, George and West compared 75 adults' AAI classifications with their AAP classifications, showing high interrater reliability on the AAP and good correspondence with the AAI. In a subsequent study, West and George (2002) showed that preoccupied attachment as assessed with the AAP was associated with dysthymia in a clinical sample of women. van Ecke (2006) compared the AAP classifications of a group of 69 Dutch and Belgian immigrants to California with those of 30 nonimmigrants, finding that being classified as unresolved was linked to greater perception of danger in general (in the AAP) and to a lower ability to resolve danger once it was perceived in a story stimulus picture. The immigrant group was most troubled by images of departure and isolation, whereas the nonimmigrants were most disturbed by images of illness.

The AAP has not yet been widely used in published studies, but George and colleagues (Buchheim, Erk, et al., 2006; Buchheim, George, Kächele, Erk, & Walter, 2006) have shown that it can be used successfully in a functional magnetic resonance imaging environment, with participants providing narratives about the AAP pictures while having their brains scanned. The measure seems worth examining further.

The Narrative Attachment Assessment (NAA) procedure (H. S. Waters & Rodrigues-Doolabh, 2001, 2004) was designed to access adults' possession of "secure-base scripts" regarding situations in which an attachment figure helps an individual resolve a stressful situation. These scripts are thought to be important components of internal working models (Bretherton, 1991; Bretherton & Munholland, Chapter 5, this volume; H. S. Waters & Waters, 2006). H. S. Waters, Rodrigues, and Ridgeway (1998) first tested this idea by reexamining children's responses to an attachment-related story completion task from a previous study (Bretherton, Ridgeway, & Cassidy, 1990). The children had been given a brief partial story (e.g., a child climbs a rock with a parent and hurts his knee), and they were asked to say how it would end (e.g., the child seeks and receives help from a parent). H. S. Waters and colleagues found that children who had been classified as secure at age 25 months told longer, richer, and more highly scripted stories about parents who provided a safe haven and secure base for their child when needed.

The NAA uses a similar procedure with adolescents and adults, but the story leads used with children are stripped down further and presented only in "prompt-word" outlines. (Sample outlines and resulting narratives are available in the article by H. S. Waters & Waters, 2006.) The prompt words are presented in three columns of four words each (e.g., "mother," "baby," "play," "blanket"; then "hug," "smile," "story," "pretend"; then "teddy bear," "lost," "found," "nap"). Study participants are asked to use these words to form a story. The stories are then coded for "secure-base scriptedness" on a 1–7 scale, where 1 indicates "No secure-base script content is apparent; the passage is primarily a list of events," and 7 indicates "Extensive secure-base script organization with substantial elaboration."

The scale scores have been related to AAI coherence, the Strange Situation classification of parents' infants, and the co-construction of secure-base themes during storytelling with children (see H. S. Waters & Waters, 2006, for details). The procedure has worked well in samples from several different cultures (e.g., Vaughn et al., 2006, 2007). Dykas, Woodhouse, Cassidy, and Waters (2006) found that secure-base scriptedness was related to both AAI security and self-report romantic attachment security in a study of 11th graders. Because the script construct is popular in both developmental and social/personality psychology, the NAA method may provide a domain in which both major streams of adult attachment research—one based on narrative measures and the other based on self-report measures (as described in most of the rest of this chapter)—can come together or at least be more clearly compared.

BEHAVIORAL ASSESSMENTS OF ADULT ATTACHMENT

A number of investigators have developed systems of observing attachment behaviors between adult partners, many using a standard marital interaction task as the stressor that provokes attachment behavior (Alexandrov et al., 2005; Creasey, 2002; Creasey & Ladd, 2005; Crowell, Treboux, Gao, et al., 2002; Furman & Simon, 2006; Roisman et al., 2005; Wampler et al., 2004). An external anxiety-inducing stressor has also been employed (Simpson et al., 2002). These assessments focus on support seeking and provision, rather than on positive and negative communication styles. There is evidence that the more specifically attachment behavior is assessed, as opposed to communication behaviors, the more likely it is to relate to narrative assessments of attachment (Crowell, Treboux, Gao, et al., 2002; Paley et al., 1999).

The Secure Base Scoring System (SBSS) is an example of one such behavioral assessment. Couples engage in a standard couple interaction task, which is videotaped and scored with the SBSS, an observational scoring system described in detail in Crowell, Treboux, Gao, and colleagues (2002). When a partner introduces a concern into the discussion, his or her secure-base use is scored on four subscales; scores range from "high quality" to "low quality." The subscales indicate (1) the clarity of initial signal or expression of distress, (2) maintenance of the signal as needed, (3) approach to the partner for help, and (4) the ability to be comforted. Based on these subscales and the general overview of the individual's behavior, the coder assigns a score on the Summary of Secure Base Use scale. Secure-base support is scored for the partner who is presented with the concern raised by the other. It is scored on four subscales: (1) interest in the partner, (2) recognition of distress or concern, (3) interpretation of distress, and (4) responsiveness to distress. Scores again range from "high quality" to "low quality." A Summary of Secure Base Support scale encompasses the overall support provided by the individual. Because the summary scales are often very highly correlated (women, $r = .86$; men, $r = .88$; Crowell, Treboux, Gao, et al., 2002), the average of the summary scales may be used to represent overall quality of secure-base behavior.

SELF-REPORT MEASURES OF ATTACHMENT HISTORY, ATTACHMENT TO PARENTS AND PEERS, AND DIMENSIONS OF RECIPROCAL ATTACHMENTS

The measures reviewed in this section are heterogeneous in focus and method, but all are self-report measures of adolescent and adult attachment that were not based on attempts to capture the attachment patterns identified by Ainsworth and colleagues (1978). None of the measures included in this section has generated as much published research as either the AAI and its offshoots or the Hazan and Shaver (1987) measure of romantic attachment style and its offshoots (see below), but they raise interesting questions and provide valuable leads for further research.

Attachment History Questionnaire

The AHQ was described in Pottharst (1990). It contains sections assessing demographic variables, family history, patterns of family interactions, parental discipline techniques, and friends and support systems. Most of the items are based on Bowlby's writings. Fifty-one items are answered on 7-point response scales, in addition to which there are several open-ended questions and checklists. A principal-components analysis was computed on the 51 scaled items, and four factors were obtained: "secure attachment base" (e.g., trusted parents, amount of love from mother); "parental discipline" (e.g., not allowed to see friends, parents took things away); "threats of separation" (e.g., parents threatened to leave, parents threatened to call police); and "peer affectional support" (e.g., dependability of friends, having been supported by friends). In many studies the subscales have been combined to yield a single security score with an alpha coefficient of .91. A book edited by Pottharst (1990), *Explorations in Adult Attachment*, describes several interesting studies using the measure, which showed that insecurity on one or more AHQ subscales was related to dysfunctional or pathological outcomes (e.g., being the mother in a family in which the father sexually abuses the daughter, abusing one's own children, becoming a prostitute, or having severe psychological problems following loss of a spouse).

With few exceptions (e.g., Kesner, 2000), users of the AHQ have focused on the kinds of extreme circumstances that originally captured Bowlby's interest and led to his thinking about attachment as a normative process, the disruptions or distortions of which could lead to psychopathology. It seems likely that further work with self-reports of attachment history in less troubled samples would yield interesting and useful results. (One such measure, by Parkes, 2006, is mentioned in a later section of this chapter.)

Inventory of Parent and Peer Attachment

Armsden and Greenberg (1987) developed the IPPA to assess adolescents' perceptions of their relationships with parents and close friends. The authors argued that in samples of adolescents, "the 'internal working model' of attachment figures may be tapped by assessing (1) the positive affective/cognitive experience of trust in the accessibility and responsiveness of attachment figures, and (2) the negative affective/cognitive experiences of anger and/or hopelessness resulting from unresponsive or inconsistently responsive attachment figures" (p. 431). Accordingly, the IPPA assesses three broad constructs as they apply to mothers, fathers, and peers: degree of mutual trust (e.g., "My mother respects my feelings"); quality of communication (e.g., "I like to get my mother's point of view on things I'm concerned about"); and degree of anger and alienation (e.g., "My mother expects too much from me"). The dimensions are highly correlated within each relationship type and are therefore commonly aggregated to yield a single index of security insecurity with respect to parents or peers.

Security with respect to parents and security with respect to peers correlate only about .30, indicating that adolescents relate differently to different kinds of close relationship partners, although the qualities assessed in different relationship domains may have common roots (Armsden & Greenberg, 1987). Reliability of the IPPA subscales is high. Three-week test–retest estimates and Cronbach's alphas were approximately .90. The IPPA has been used in several studies to assess security in adolescents and is related to theoretically relevant outcome variables. For example, adolescents who report secure relations with parents also report less conflict between their parents. Secure peer and parental ratings are positively associated with self-esteem and life satisfaction, use of problem-focused coping strategies, and low levels of loneliness and distress (Armsden & Greenberg, 1987). Such security is also associated with higher levels of adjustment (Bradford & Lyddon, 1993; Kenny & Perez, 1996) and identity formation (Schultheiss & Blustein, 1994). Holtzen, Kenny, and Mahalik (1995) found that among a sample of young homosexual adults, those who were secure with their parents were more likely to have disclosed their sexual orientation to their parents (see also Mohr, Chapter 22, this volume). In a sample of 10- to 16-year-old psychiatric patients, adolescents with clinical depression reported more insecure relationships with parents, but those who had recovered from depression did not (Armsden, McCauley, Greenberg, Burke, & Mitchell, 1990); this is similar to the findings for "earned security" in the AAI (Roisman et al., 2006). Lei and Wu (2007) found that parental alienation was related to adolescents' tendencies to seek attachment-like relationships via the Internet.

As mentioned, the IPPA was not designed to differentiate among the attachment patterns delineated by Ainsworth and colleagues (1978): "It is not clear what the development[al] manifestations of 'avoidant' or 'ambivalent' would be in adolescence, or if other conceptualizations of insecure attachment would be more appropriate" (Armsden & Greenberg, 1987, p. 447). Analyses by Brennan, Clark, and Shaver (1998) indicate that the IPPA subscales of trust and communication load primarily on one of the two major dimensions common to self-report measures of romantic/peer attachment, attachment anxiety. The IPPA alienation subscale loads relatively highly on both anxiety and the second dimension, avoidance (see further discussion of these dimensions later in the present chapter).

Reciprocal and Avoidant Attachment Questionnaires for Adults

West and Sheldon-Keller (West & Sheldon, 1988; West et al., 1987; West & Sheldon-Keller, 1992, 1994) have developed two multi-item instruments for measuring individual differences in adult attachment: the Reciprocal Attachment Questionnaire for Adults and the Avoidant Attachment Questionnaire for Adults. Based on Bowlby's (1980) clinical observations concerning loss and its impact on attachment behavior and functioning in children and adults, West and Sheldon-Keller's Reciprocal Attachment Questionnaire operationalizes various components of the attachment system in adults: proximity seeking (e.g., "I feel lost if I'm upset and my attachment figure is not around"); separation protest (e.g., "I feel abandoned when my attachment figure is away for a few days"); feared loss (e.g., "I'm afraid that I will lose my attachment figure's love"); availability (e.g., "I am confident that my attachment figure will try to understand my feelings"); and use of the attachment figure (e.g., "I talk things over with my attachment figure"). It also operationalizes general patterns of attachment: angry withdrawal (e.g., "I get frustrated when my attachment figure is not around as much as I would like"); compulsive caregiving (e.g., "I put my attachment figure's needs before my own"); compulsive self-reliance (e.g., "I feel it is best not to rely on my attachment figure"); and compulsive care seeking (e.g., "I would be helpless without my attachment figure").

A unique feature of the instruments developed by West and Sheldon-Keller is that each participant is instructed to answer the questions with respect to an individual he or she considers to be a primary attachment figure. Thus the instruments do not assess attachment with respect to romantic relationships, friendship relationships, or parental relationships in general. Instead, they assess the quality of attachment to whoever is identified as an individual's most important attachment figure. (Other self-report methods have been developed to determine who a particular adult's major attachment figures are. Although we do not discuss these measures in the present chapter because of space limitations, they are worth examining. (For examples, see Doherty & Feeney, 2004; Fraley & Davis, 1997; Hazan & Zeifman, 1994; Mikulincer, Gillath, & Shaver, 2002; Trinke & Bartholomew, 1997.)

West and Sheldon-Keller created a separate questionnaire, the Avoidant Attachment Questionnaire, for adults who claim not to have a primary attachment figure. This instrument contains four subscales: "maintains distance in relationships" (e.g., "I'm afraid of getting close to others"); "high priority on self-sufficiency" (e.g., "My strength comes only from myself "); "attachment relationship is a threat to security" (e.g., "Needing someone would make me feel weak"); and "desire for close affectional bonds" (e.g., "I long for someone to share my feelings with").

The subscales of the Reciprocal Attachment Questionnaire have fairly high internal consistency and test–retest reliability over 4 months (approximately .75). Factor analyses of the items indicate that a two-factor solution provides a relatively good fit (West & Sheldon-Keller, 1994). Among the component subscales of the Reciprocal Attachment Questionnaire, availability, feared loss, and proximity seeking load highly on one factor, and use of the attachment figure and separation protest load highly on a second factor. Analyses of the general attachment patterns from the Reciprocal

Attachment Questionnaire indicate that compulsive self-reliance and angry withdrawal load highly on one factor, and that compulsive caregiving and that compulsive care seeking load highly on a second factor. A similar two-dimensional structure appears to underlie the Avoidant Attachment Questionnaire. As Brennan and colleagues (1998) showed, and as we discuss in the next section, this two-factor structure is conceptually similar to the one uncovered in analyses of most self-report measures of adult romantic attachment.

SELF-REPORT MEASURES OF ROMANTIC ATTACHMENT

The study of romantic attachment began in the late 1970s and early 1980s, in an attempt to understand the nature and etiology of adult loneliness and the various ways that people experience love. It had been noticed that many lonely adults report troubled childhood relationships with parents and either distant or overly enmeshed romantic relationships, suggesting that attachment history might play a role in the experience of adult loneliness (Rubenstein & Shaver, 1982; Shaver & Hazan, 1987; Weiss, 1973). Also, social psychologists and anthropologists had observed that there is considerable variability in the way people approach love relationships (ranging from intense preoccupation to psychological distance), and they were developing individual-difference taxonomies to capture this variability (see Sternberg & Barnes, 1988, for examples). Despite these rich descriptions, there was no compelling theoretical framework within which to organize or explain the observed individual differences (Hazan & Shaver, 1994).

In an attempt to address this issue, Hazan and Shaver (1987) published a paper in which they conceptualized romantic love (or "pair bonding," to use the term common in contemporary evolutionary psychology) as an attachment process, involving the interplay among attachment, caregiving, and sexual behavioral systems. Hazan and Shaver noted that many of the emotional and behavioral dynamics characteristic of infant–mother attachment relationships also characterize adult romantic relationships. For example, both kinds of relationships involve hugging and caressing, ventral–ventral contact, "baby talk," and cooing. More importantly, in each case an individual feels safest and most secure when the other is nearby, accessible, and responsive. Under such circumstances, the partner may be used as a "secure base" from which to explore the environment. When an individual is feeling distressed, sick, or threatened, the partner is used as a "safe haven"—a source of safety, comfort, and protection (see Shaver et al., 1988, for further discussion of these parallels).

Hazan and Shaver (1987; Shaver & Hazan, 1988) argued that the various approaches to love and the experience of loneliness described by social psychologists reflect individual differences in the organization of the attachment system during adulthood. Specifically, they argued that the major patterns of attachment described by Ainsworth and colleagues (1978)—secure, ambivalent or resistant, and avoidant—are conceptually similar to the romantic attachment patterns observed among adults. Although Bowlby and Ainsworth had discussed the role of attachment in romantic relationships, no one had actually attempted to assess, in the adult pair-bond context, the kinds of individual differences among infants noted by Ainsworth and colleagues.

Attachment Style Questionnaires

When Hazan and Shaver (1987, 1990) began their work on romantic attachment, they adopted Ainsworth's threefold typology as a framework for organizing individual differences in the ways adults think, feel, and behave in romantic relationships. In their initial studies, Hazan and Shaver developed brief multisentence descriptions of the three proposed attachment types—avoidant, secure, and ambivalent:

"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, others want me to be more intimate than I feel comfortable being" (avoidant).

"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 worry about being abandoned or about someone getting too close to me" (secure).

"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 get very close to my partner, and this sometimes scares people away" (ambivalent).

These descriptions were based on a speculative extrapolation of the three infant patterns as summarized in the final chapter of Ainsworth and colleagues' (1978) book. Research participants are asked to think back across their history of romantic relationships and say which of the three descriptions best captured the way they *generally* experience and act in romantic relationships. The descriptions refer to a person's characteristic desires, feelings, and behaviors, and to comments made by relationship partners. Because of the closed-ended nature of the measure, there is no attempt to measure discourse coherence. In other words, the manifest content of the measure is quite different from the discourse focus of the AAI and CRI, discussed earlier in this chapter.

In their initial studies, Hazan and Shaver (1987) found that people's self-reported romantic attachment patterns related to a number of theoretically relevant variables, including beliefs about love and relationships (working models of romantic relationships) and recollections of early experiences with parents. Many researchers adopted Hazan and Shaver's categorical, forced-choice measure because of its novelty, brevity, face validity, and ease of administration. Nonetheless, a few investigators quickly recognized some of its limitations (e.g., Collins & Read, 1990; Levy & Davis, 1988; Simpson, 1990). For example, the categorical measurement model assumes that variation among people within a category is unimportant or does not exist, and that individuals do not vary in the extent to which they can be characterized by each pattern. In addition, as Baldwin and Fehr (1995) pointed out, the test–retest stability of the categorical measure was only 70% (equivalent to a Pearson *r* of approximately .40) and did not decrease as a function of the magnitude of the test–retest interval. This suggested that the temporal instability was due to measurement error resulting from classification artifacts, not to "true" change in attachment security (Fraley & Waller, 1998; Scharfe & Bartholomew, 1994).

To address these issues, many attachment researchers began to use continuous rating scales. For example, Levy and Davis (1988) asked participants to rate how well each attachment pattern described their general approach to relationships. Test–retest reliability estimates for ratings of the three alternatives tended to be about .60 over periods ranging from 1 to 8 weeks (Baldwin & Fehr, 1995; Feeney & Noller, 1996). Subsequently, Collins and Read (1990) and Simpson (1990) decomposed the three multisentence descriptions to form separate items that could be rated on Likert response scales. These brief multi-item scales yielded alpha and test–retest (over periods ranging from 1 week to 2 years) reliability estimates of .70 (e.g., Carpenter & Kirkpatrick, 1996; Collins & Read, 1990; Fuller & Fincham, 1995; Scharfe & Bartholomew, 1994; Simpson, Rholes, & Phillips, 1996).

A number of researchers proposed similar measures of adult romantic attachment patterns (e.g., Brennan & Shaver, 1995; Carver, 1997; J. A. Feeney, Noller, & Hanrahan, 1994; Griffin & Bartholomew, 1994a; see Brennan et al., 1998, for a comprehensive list). In the midst of these efforts, Bartholomew (1990; Bartholomew & Horowitz, 1991; Griffin & Bartholomew, 1994b) proposed a more elaborate conceptualization of what most investigators came to call "attachment orientations," "attachment patterns," or "attachment styles." The various attempts to create multi-item scales revealed that there are two major dimensions underlying self-report measures of attachment: anxiety (about abandonment or insufficient love) and avoidance (of intimacy, interdependence, and emotional openness).

These two dimensions were conceptualized by Brennan and colleagues (1998) as corresponding to the two dimensions underlying Ainsworth's infant typology (see Figure 10 of Ainsworth et al., 1978). In a discriminant analysis involving 105 infants who had been categorized and scored by coders on Ainsworth's infant behavior scales (e.g., crying, contact maintenance, exploratory behavior, resistance, avoidance), two linear combinations of coding scales were derived that discriminated well among the three infant categories (see also Fraley & Spieker, 2003). One function distinguished ambivalent (angry, tearful) from secure and avoidant infants, thereby reflecting variability in anxious or ambivalent attachment. The other distinguished avoidant from secure and anxious or ambivalent infants, thereby reflecting avoidance. Conceptually, these two dimensions can be viewed as 45-degree rotations of Kobak's security–anxiety and deactivation–hyperactivation dimensions (discussed earlier in this chapter).

Bartholomew (1990) provided an interpretation of these dimensions in terms of what Bowlby called working models of self and attachment figures. She argued that the two dimensions underlying measures of adult attachment can be conceptualized as "model of self " (positive vs. negative) and "model of others" (positive vs. negative). She also pointed out that combinations of the two dimensions can be viewed as yielding four, rather than three, attachment patterns. She chose names for the four patterns based on a mixture of Ainsworth's, Hazan and Shaver's, and Main and colleagues' (1985) typologies, calling the positive–positive group "secure," the negative–positive group "preoccupied," the positive–negative group "dismissing," and the negative–negative group "fearful."

Following Hazan and Shaver's lead, Bartholomew and Horowitz (1991) developed the Relationship Questionnaire (RQ), a short instrument containing multisentence descriptions of each of the four types:

"It is easy for me to become emotionally close to others. I am comfortable depending on them and having them depend on me. I don't worry about being alone or having others not accept me" (secure).

"I am uncomfortable getting close to others. I want emotionally close relationships, but I find it difficult to trust others completely, or to depend on them. I worry that I will be hurt if I allow myself to become too close to others" (fearful).

"I want to be completely emotionally intimate with others, but I often find that others are reluctant to get as close as I would like. I am uncomfortable being without close relationships, but I sometimes worry that others don't value me as much as I value them" (preoccupied).

"I am comfortable without close emotional relationships. It is very important to me to feel independent and self-sufficient, and I prefer not to depend on others or have others depend on me" (dismissing).

Notice that the wording of three of the four type descriptions (secure, preoccupied, and fearful) is very similar to the wording of the three Hazan and Shaver descriptions (secure, ambivalent, and avoidant). However, the compulsive self-reliance and independence depicted in Bartholomew's dismissing description are not represented in the original Hazan and Shaver taxonomy. As with Hazan and Shaver's instrument, respondents choose the RQ description that best fits them, and they rate each description according to how well it describes them. In general, reliability estimates for the RQ classifications (kappas of about .35) and ratings (*r*'s of about .50) are comparable to those of the original Hazan and Shaver three-category instrument (Scharfe & Bartholomew, 1994).

The RQ was more fully developed by Griffin and Bartholomew (1994a) to form the Relationship Styles Questionnaire (RSQ), a 30-item inventory that contains content from both the Hazan and Shaver descriptions and the RQ descriptions. The RSQ can be scaled to create a score for each person on each of the four attachment patterns. That is, each individual can be assigned secure, fearful, preoccupied, and dismissing scores. Also, the RSQ can be used to score people on the two dimensions (model of self and model of other) that underlie these patterns. Due to its multi-item nature, the RSQ exhibits somewhat higher reliability than the RQ (*r*'s of about .65 for the brief scales assessing each of the four attachment patterns; Fraley & Shaver, 1997).

It is worth mentioning here that Parkes (2006), in a recent book on bereavement (discussed further by Shaver & Fraley, Chapter 3, this volume), describes an interesting Retrospective Attachment Questionnaire. This instrument asks adults about their childhood relationships with parents, using only 32 yes–no questions, and about their childhood emotional experiences, using 35 additional yes–no questions. Based on responses to these questions, Parkes scored an adult sample in terms of attachment security, anxiety, avoidance, and disorganization—similar to Bartholomew's four categories (which were, of course, strongly influenced by the AAI categories). Parkes obtained many valuable insights into his sample members' reactions to bereavement. More research should be done to compare Parkes's measure, which is based on retrospective questions about childhood relationships, with ones based on Bartholomew's peer attachment measures.

Well before Parkes's (2006) measure was published, in an effort to reduce the growing number of romantic and peer attachment scales, Brennan and colleagues (1998) factor-analyzed the nonredundant items from all extant self-report attachment measures, including the RQ and RSQ. They found that two major factors (anxiety and avoidance) underlie these measures and can be represented well by two 18-item scales, each with a coefficient alpha of about .90, which are included in the Experiences in Close Relationships (ECR) inventory. The two subscales of the ECR capture the gist of the Armsden and Greenberg IPPA and the West and Sheldon-Keller Reciprocal and Avoidant Attachment Scales for Adults; this suggests that all self-report attachment scales, whether conceived originally in terms of Bowlby's specific constructs (e.g., West & Sheldon-Keller, 1994) or Ainsworth's (e.g., Hazan & Shaver, 1987), load substantially on the same two major factors. These factors can be viewed in terms of either their affective–behavioral names, "anxiety" and "avoidance," or their cognitive/representational (working-model-related) names, "model of self " and "model of other." The ECR is currently one of the most commonly used self-report measures of adult attachment, along with the ECR-R—an alternative version of the ECR developed with methods related to item response theory (Fraley, Waller, & Brennan, 2000).

Current Issues in the Measurement of Adult Romantic Attachment with Self-Reports

Despite conceptual and methodological advances in the study of romantic attachment, a number of important controversies and problems remain. The first concerns whether adult attachment patterns are best conceptualized and measured as types or dimensions (Fraley & Waller, 1998; Griffin & Bartholomew, 1994b). Taxometric work indicates that the adult attachment patterns assessed with self-report measures are best understood in terms of a latent dimensional model (Fraley & Waller, 1998). Fraley and Waller (1998) reviewed many of the problems that can arise when categorical methods are used to assess dimensional phenomena, and they recommended that researchers adopt dimensional measurement models to study adult attachment. Interestingly, this argument suggests that many published findings from research on romantic attachment might have been stronger if researchers had used dimensional rather than categorical assessment procedures (see Brennan et al., 1998, for examples). (The same kind of argument has been made with respect to the Strange Situation and the AAI; see Fraley & Spieker, 2003; Roisman, Fraley, et al., 2007.)

A second issue concerns how best to conceptualize the two dimensions that underlie adult attachment. Should measurement be focused on assessing variation in the content of working models, or variation in the functional operation of the attachment system? Within Bartholomew's framework, individual differences in adult attachment are conceptualized in terms of a person's cognitive models of self and others. Accordingly, many researchers have attempted to specify the actual beliefs that people with different attachment orientations hold (e.g., Baldwin, Fehr, Keedian, Seidel, & Thomson, 1993; Collins, 1996; Klohnen & John, 1998). When Hazan and Shaver originally applied attachment theory to adults, however, they conceptualized individual differences in terms of the functioning of the attachment system in the domains of affect, affect regulation, and relational behavior, much of which is not very "cognitive" (Shaver et al., 1988; Shaver & Hazan, 1988; see also Mikulincer & Shaver, Chapter 23, this volume).

According to Hazan and Shaver's perspective, as elaborated by Fraley and Shaver (2000), individual differences in attachment patterns are attributable to two different components of the attachment system. One component involves anxious monitoring of the psychological proximity and availability of the attachment figure. When either the attachment figure is perceived as being available and responsive (the "secure" stance), or the attachment figure's availability is not viewed as relevant to or useful in attaining personal safety (the "avoidant" or "dismissing" stance), an individual can focus on other issues and goals (e.g., exploration). This process is closely related to individual differences on the attachment anxiety dimension. The second component of the system concerns the regulation of attachment behavior with respect to attachment-related concerns. For example, to regulate attachment-related anxiety, people can either seek contact with an attachment figure (i.e., use the figure as a safe haven) or withdraw and attempt to handle the threat alone. This decision, which is probably not usually made consciously, is responsible for individual differences on the avoidance dimension.

Viewed in these terms, further specification of the concerns, appraisals, and emotional processes that underlie adult romantic attachment experiences and behaviors need not be limited to positive and negative beliefs about self and other. Thus, although researchers from both the "internal working models" and the "behavioral systems" perspectives currently assess individual differences in terms of the same empirical dimensions (model of self/anxiety and model of other/avoidance), there are differences in the way these dimensions are conceptualized—and, accordingly, differences in the way measurement instruments are being revised and refined (see Mikulincer & Shaver, 2007 and Chapter 23, this volume, for elaborations of the attachment system model).

Finally, there is debate concerning whether attachment patterns are best assessed with self-report instruments or interviews, and whether the two kinds of methods converge on the same phenomena (Bartholomew & Shaver, 1998; Crowell & Treboux, 1995; Gjerde, Onishi, & Carlson, 2004; Roisman, Holland, et al., 2007; Shaver, Belsky, & Brennan, 2000). We return to this issue in the final section of the chapter, because it is responsible for considerable tension between the AAI and self-report traditions within the field of adult attachment research. Here, however, it is worth noting that Bartholomew (Bartholomew & Horowitz, 1991; Griffin & Bartholomew, 1994a, 1994b) and other attachment researchers (Cowan et al., 1999; Gjerde et al., 2004) have developed semistructured interview techniques for assessing adult romantic attachment. These methods are all influenced by the AAI and its scoring system, but some (most notably Bartholomew's) are scored in terms of the two dimensions discussed in the present section, anxiety (model of self) and avoidance (model of others), whereas the AAI and CRI are not. It is important to note that individual differences, when assessed with Bartholomew's interview technique, tend to correspond reasonably well with patterns assessed by self-report instruments (Bartholomew & Horowitz, 1991; Bartholomew & Shaver, 1998; Griffin & Bartholomew, 1994b).

The Nomological Network and Construct Validity

As explained earlier, the AAI coding system was initially developed empirically to maximize the prediction of an adult parent's *infant's* classification in the Strange Situation. In this sense, there was an obvious "gold standard" for the AAI's validity—the categories of the Strange Situation, which are based on naturalistic observations of infants' secure-base behavior. In contrast, the self-report instruments in the Hazan and Shaver tradition were not designed to predict any single criterion. Instead, their validity and the value of the research tradition from which they derive rest on their ability to empirically reproduce the network of covariates postulated by the theory (Cronbach & Meehl, 1955). In this section we discuss the construct validity of measures of adult romantic attachment, focusing on relationship processes, the dismissing strategy in particular, and general adjustment and psychopathology (for more detailed reviews, see Bartholomew & Perlman, 1994; J. Feeney, Chapter 21, this volume; J. A. Feeney & Noller, 1996; Mikulincer & Shaver, 2007; Reis & Patrick, 1996; Shaver & Clark, 1994; Shaver & Hazan, 1993; Shaver & Mikulincer, 2002a, 2002b; Simpson & Rholes, 1998; Sperling & Berman, 1994). We begin with a brief rationale for the use of self-report instruments in the assessment of attachment security in adults.

The Rationale for Assessing Adult Romantic Attachment with Self-Report Methods

A number of authors have questioned the validity of assessing adult attachment with self-report instruments (Crowell & Treboux, 1995; de Haas, Bakermans-Kranenburg, & van IJzendoorn, 1994; Gjerde et al., 2004), noting the difficulty of assessing unconscious or automatic processes with measures that tap people's conscious reports. There are, however, at least three reasons why self-report instruments are appropriate for investigating individual differences in adult attachment. First, according to Bowlby, attachment plays an important role in people's emotional lives (Volumes 2 and 3 of *Attachment and Loss* [Bowlby, 1973, 1980] deal primarily with anxiety, anger, sadness, grief, and depression). Adults are able to provide valuable information about their emotional experiences and behavior. Second, most adults have sufficient experience in close relationships to recount how they behave in such relationships and the kinds of things their partners have said to them about their behavior. Third, conscious and unconscious processes typically operate in the same direction to achieve a goal (Jacoby, Toth, Lindsay, & Debner, 1992). Bowlby himself (e.g., Bowlby, 1980) talked about both conscious and unconscious forms of defense.

In some cases, however, the conscious beliefs people hold are inaccurate reflections of the organization of their attachment system. Some people defensively report that they are not anxious when actually they are; others may simply lack insight into their true motives and behavior. Nonetheless, even in these cases it is possible to use attachment theory to derive the kinds of conscious beliefs that defensive people may hold about themselves. For example, an avoidant person should believe that he or she is "independent" and "self-sufficient," does not "worry about abandonment," and does not "need close relationships." Holding such beliefs is an important part of defensively excluding attachment-related thoughts and emotions. It is a separate question whether people endorsing such statements in a questionnaire actually do or do not need close relationships to the same extent as other kinds of people, or whether they can function well without others. Although self-reports are frequently used to assess individual differences in attachment security, they are rarely used alone to investigate the dynamics of attachment and defense. In other words, placing a person in the two-dimensional attachment style space is not, by itself, the same as determining *why* the person is located in a particular region of the space. (Similarly, coding someone as having poor recall in the AAI for attachment- related events in childhood does not automatically reveal the *reasons* for poor recall.)

To probe these deeper issues, researchers typically employ behavioral observations (Fraley & Shaver, 1998), psychophysiological assessments (Carpenter & Kirkpatrick, 1996; B. C. Feeney & Kirkpatrick, 1996; Fraley & Shaver, 1997), neuroimaging (Gillath, Bunge, Shaver, Wendelken, & Mikulincer, 2005), peer reports (Banai, Weller, & Mikulincer, 1998; Bartholomew & Horowitz, 1991; Gjerde, Block, & Onishi, 1998), projective tests (Berant, Mikulincer, Shaver, & Segal, 2005; Mikulincer, Florian, & Tolmacz, 1990; Woike, Osier, & Candella, 1996), diary techniques (Pietromonaco & Barrett, 1997; Tidwell, Reis, & Shaver, 1996), and experimental cognitive research methodologies (Baldwin et al., 1993; Fraley & Shaver, 1997, 1998; Mikulincer, 1995, 1998; Mikulincer, Dolev, & Shaver, 2004; Mikulincer & Orbach, 1995). With such a diverse array of methods, the complex meanings of scores on self-report attachment measures have gradually been revealed, and the results fit coherently with attachment theory (see Mikulincer & Shaver, 2007, for a comprehensive review).

Relationship Processes

According to attachment theory, individual differences in the organization of the attachment system emerge from interactions with attachment figures (Ainsworth et al., 1978; Bowlby, 1973) and have numerous influences on relationship dynamics, potentially ranging from partner selection to mechanisms of relationship maintenance and dissolution.

Partner Selection. Cross-cultural studies suggest that the secure pattern of attachment in infancy is universally considered the most desirable pattern by mothers (see van IJzendoorn & Sagi-Schwartz, Chapter 37, this volume). For obvious reasons, there is no similar study asking infants whether they would prefer a security-inducing caregiver or attachment figure. Adults seeking long-term relationships identify responsive caregiving qualities, such as attentiveness, warmth, and sensitivity, as most "attractive" in potential dating partners (Baldwin, Keelan, Fehr, Enns, & Koh-Rangarajoo, 1996; Chappell & Davis, 1998; Frazier, Byer, Fischer, Wright, & DeBord, 1996; Miller & Fishkin, 1997; Pietromonaco & Carnelley, 1994; Zeifman & Hazan, 1997).

Despite the attractiveness of secure qualities, however, not everyone is paired with a secure partner. Some evidence suggests that people end up in relationships with partners who confirm their existing beliefs about attachment relationships (Brennan & Shaver, 1995; Collins & Read, 1990; Frazier et al., 1996; but see Kirkpatrick & Davis, 1994). In some research that has employed social-cognitive methods for studying transference processes, Brumbaugh and Fraley (2006, 2007) found that people who held negative representations of significant others (parental or romantic) from their pasts were more likely to feel insecure with novel relationship partners. Moreover, this effect was pronounced when representations of the previous significant others were activated without the participants' awareness. This suggests that although most people would prefer a secure partner if given a choice, they tend to re-experience the same kinds of thoughts and feelings in new relationships due to the way existing representations shape new experiences.

Implications for Secure-Base and Safe-Haven Behavior. Overall, secure adults tend to be more satisfied in their relationships than insecure adults. Their relationships are characterized by greater longevity, trust, commitment, and interdependence (J. A. Feeney, Noller, & Callan, 1994; Keelan, Dion, & Dion, 1994; Kirkpatrick & Davis, 1994; Kirkpatrick & Hazan, 1994; Senchak & Leonard, 1992; Simpson, 1990), and they are more likely to use romantic partners as a secure base from which to explore the world (Fraley & Davis, 1997). A large proportion of research on adult attachment has been devoted to uncovering the behavioral and psychological mechanisms that promote security and secure-base behavior in adults. There have been two major discoveries thus far. First, and in accordance with attachment theory, secure adults are more likely than insecure adults to seek support from their partners when distressed. Furthermore, they are more likely to provide support to their distressed partners. Second, the attributions that insecure individuals make concerning their partners' behavior during and following relational conflicts exacerbate, rather than alleviate, their insecurities.

Concerning the first dynamic, Simpson, Rholes, and Nelligan (1992) found in a laboratory study that secure women who were overtly distressed were more likely than insecure women to seek emotional support from their partners. Also, secure men were more likely than insecure men to provide support to their distressed partners. In a naturalistic observational study, Fraley and Shaver (1998) found that secure women who were separating from their partners in an airport were more likely than insecure women to express their anxiety, seek comfort from their partners, and provide comfort for their partners (attending to them, holding their hands, etc.). In contrast, avoidant women were more likely to pull away or withdraw from their partners. Collins and Feeney (2000) found that secure individuals were more likely to offer care and support to their partners during a laboratory discussion of a stressful event. (For a review of related studies, see Collins, Guichard, Ford, & Feeney, 2006. For examples of extensions of these ideas well beyond romantic relationships to relationships in organizational and work contexts, see Davidovitz, Mikulincer, Shaver, Ijzak, & Popper, 2007.) Similar findings have been obtained in studies of self-reported behavioral strategies during stressful situations. For example, Pistole (1989) found that secure adults were more likely than insecure adults to use conflict resolution strategies involving compromise and integration. Gaines and colleagues (1997) found that secure individuals tended not to use defensive and destructive strategies for dealing with conflictual situations. Prospective studies corroborate these observations (e.g., Scharfe & Bartholomew, 1995).

These findings suggest that part of the reason why some individuals feel more secure in their relationships is that they openly express their worries and receive reassurance and support (B. C. Feeney, 2007). Furthermore, the data suggest that some people feel insecure in their relationships because they cannot turn to their partners for comfort and support. Existing research has not been able to tease apart the precise causal structure of these processes. It may be that having a responsive partner influences the way an individual comes to think and behave in a relationship. In addition, perhaps individuals who enter relationships with secure expectations are more likely to seek support from others and to elicit responsive behavior from them. In general, the evidence suggests that the causal relations are bidirectional (Fuller & Fincham, 1995).

In support of the first interpretation, Simpson and colleagues (1996) observed partners who were instructed to discuss and resolve a major issue in their relationship. They found that anxious adults were most likely to view their partners in a negative light after a major conflict. These adults felt more anger and hostility toward their partners than less anxious individuals, and viewed their relationship as involving less love, commitment, and mutual respect. In contrast, secure individuals viewed their partners in a more positive light after discussing a conflictual topic (see Fuller & Fincham, 1995, for related findings). Thus conflictual relationship events, despite their negative valence, may provide an opportunity for secure individuals to build their trust in each other. In contrast, such conflicts appear to magnify insecure partners' insecurities and doubts.

Research also suggests that the beliefs and expectations people hold prior to entering a relationship affect secure-base behavior and relationship development. Collins (1996) conducted an experiment in which participants were instructed to read hypothetical relationship scenarios depicting a partner behaving in ambiguous ways that could be construed in a negative light (e.g., losing track of the partner during a party). She found that anxious participants inferred hostile and rejecting intentions, whereas secure participants inferred more positive intentions. Similarly, Mikulincer (1998) found that insecure adults were more likely to attribute hypothetical trust-violating events (but not trust-validating events) to their partners' intentions. Over time, such attributional processes appear to diminish the degree of trust that both partners extend toward each other (Fuller & Fincham, 1995). For example, Keelan and colleagues (1994) found that insecure adults experienced decreases in trust and relationship satisfaction over a 4-month period.

Changes in Attachment over Time. Cross-sectional and longitudinal studies indicate that the longer partners have been together, the less anxious they become about attachment-related issues such as separation or abandonment (Fraley & Shaver, 1998; Klohnen & Bera, 1998; Mickelson, Kessler, & Shaver, 1997). In other words, scores on the anxiety dimension generally decrease over time. Cross-sectional evidence also suggests that partners become more similar to each other in security over time (Fraley & Shaver, 1998). This observation suggests that attachment security is affected by reciprocal influence processes as a relationship develops (Fuller & Fincham, 1995).

The Dismissing Strategy

According to attachment theory, people differ in the kinds of strategies they adopt to regulate the distress associated with nonoptimal caregiving. Following a separation and reunion, for example, some insecure children approach, but with ambivalence and resistance; others withdraw, apparently minimizing attachment-related feelings and behavior (Main & Weston, 1981). These different strategies have been referred to as "hyperactivating" or "maximizing" strategies and "deactivating" or "minimizing" strategies, respectively (Cassidy & Kobak, 1988; Fraley, Davis, & Shaver, 1998; Main, 1990). Researchers studying romantic attachment have attempted to illuminate some of the defense mechanisms underlying these behavioral strategies. In an experimental task in which adults were instructed to discuss losing their partners, Fraley and Shaver (1997) found that dismissing individuals were just as physiologically distressed (as assessed by skin conductance measures) as other individuals. When instructed to suppress their thoughts and feelings, however, dismissing individuals were able to do so effectively. That is, they could deactivate their physiological arousal to some degree and minimize the attention they paid to attachment-related thoughts. (Interestingly, preoccupied adults experienced an *increase* in arousal, relative to control conditions, when trying to suppress attachment-related anxiety.) Fraley and Shaver argued that such deactivation is possible because avoidant individuals (1) have less complex networks of attachment-related representations, (2) can effectively redirect their attention away from anxiety-provoking stimuli, and (3) can keep their interpersonal world structured so as to minimize attachment-related experiences.

In support of these propositions, Mikulincer and Orbach (1995) found that when asked to recall emotional childhood memories, avoidant adults recalled memories that were characterized by emotional discreteness. That is, when asked to recall a sad memory, avoidant individuals recalled memories that contained only elements of sadness and not elements of anger and anxiety, which tended to be present in the sad memories of secure and especially of preoccupied individuals. Fraley, Garner, and Shaver (2000) found that these recall processes were partly attributable to the way information is encoded rather than the way it is retrieved per se. Indeed, using both explicit and implicit tests of memory, Fraley and Brumbaugh (2007) found that highly avoidant individuals had difficulty remembering attachment-relevant information—even when they were offered financial incentives to recall as much of the information to which they had been exposed as possible.

Research has also shown that dismissing individuals are less likely to engage in attachment behaviors with their partners (Fraley & Davis, 1997; Shaver & Fraley, Chapter 3, this volume) and are less likely to engage in behaviors thought to promote affectional bonding, such as eye-to-eye contact, kissing, and open communication about feelings (Fraley et al., 1998). In summary, individuals organize their interpersonal behavior in a way that minimizes attachment-related issues. This defensive strategy is reflected in the ways they regulate their attention, behavior, and emotions (Fraley et al., 1998).

It should be noted, however, that these defensive strategies can be undermined. Mikulincer and colleagues (2004) utilized a thought suppression paradigm similar to that used by Fraley and Shaver (1997) and found that highly avoidant people did not show even implicit indications of vulnerability after having thought about a relationship breakup; however, when they were placed under a cognitive load (having to remember a seven-digit number), concepts related to breaking up, as well as each avoidant person's own negative traits, became much more available, suggesting that avoidant defenses can be broken down. A related study (Berant, Mikulincer, & Shaver, in press) showed that avoidant women who gave birth to a child with a congenital heart defect—a persistently distressing situation that cannot be ignored—became increasingly troubled over time, as did their marriages, and their children showed detrimental effects over the first 7 years of life. Nonavoidant women in the same situation did not deteriorate over time, and their children did not show the same adverse effects. These studies suggest that some of the defensive processes used by avoidant individuals require constant cognitive effort.

General Adjustment and Psychopathology

In general, individuals who are secure with respect to attachment have high self-esteem (Bartholomew & Horowitz, 1991; Brennan & Bosson, 1998; Brennan & Morris, 1997; Collins & Read, 1990; J. A. Feeney & Noller, 1990; Shaver et al., 1996) and are considered well adjusted, nurturing, and warm by their peers (Bartholomew & Horowitz, 1991). As found in studies using the AAI (reviewed earlier in this chapter), the *kind* of self-esteem is also meaningfully related to attachment organization. For example, although autonomous and dismissing adults typically report high levels of self-esteem, Brennan and Morris (1997) found that secure adults were more likely to derive their self-esteem from internalized positive regard from others, whereas dismissing adults were more likely to derive their self-esteem from various abilities and competencies.

Not surprisingly, adults with a variety of clinical disorders are more likely to report themselves as insecure (see Mikulincer & Shaver, 2007, Ch. 13, for a review). Depressed adults are more likely to report themselves as insecure, especially preoccupied and fearful (Carnelley, Pietromonaco, & Jaffe, 1994; Hammen et al., 1995). Furthermore, individuals with eating disorders, such as bulimia nervosa and anorexia nervosa, are more likely to report themselves as insecure (Brennan & Shaver, 1995; Burge et al., 1997). College students who felt their parents had drinking problems were more likely to rate themselves as insecure (Brennan, Shaver, & Tobey, 1991) and were reportedly more likely to "drink to cope" themselves (Brennan & Shaver, 1995).

Brennan and Shaver (1998) examined the structure of self-report measures of 13 personality disorders (e.g., schizoid, paranoid, avoidant, obsessive–compulsive) and discovered that two of the three dimensions underlying these scales are the now-familiar dimensions underlying adult romantic attachment patterns. (See Crawford et al., 2006, for a related study of adult attachment orientation and personality disorders.) Woike and colleagues (1996) examined the association between self-reported attachment and the use of violent imagery in the Thematic Apperception Test (TAT). They found that anxious individuals were the most likely to use violent imagery, and they suggested that such imagery may stem from frustration with romantic partners who thwart attachment needs. Consistent with this line of reasoning, Dutton, Saunders, Starzomski, and Bartholomew (1994) found a high incidence of fearful and preoccupied men (i.e., the two groups highest on the anxiety dimension) within a sample that had been referred for treatment for wife assault. Similarly, Bookwala and Zdaniuk (1998) found that preoccupied and fearful adults were the most likely to be involved in reciprocally aggressive romantic relationships (see also Bartholomew & Allison, 2006). The anger that accompanies insecure attachment in adulthood appears to have ramifications for the way people treat their children as well. Moncher (1996) found that parents who abused their children were more likely to rate themselves as insecure than secure.

Discriminant Validity

Evidence for the construct validity of self-report measures of adult attachment comes from the nomological network (Cronbach & Meehl, 1955) of correlations between attachment measures and theoretically relevant variables. And the network corresponds with Bowlby's (e.g., 1980, 1988) belief that attachment orientation is related to many aspects of a person's life. Still, the validity of self-report attachment measures would be called into question if they overlapped too much with measures of constructs viewed as theoretically distant from attachment (Shaver & Brennan, 1992). Several constructs have been proposed as alternatives to attachment style in explaining what self-report measures of adult attachment actually measure. Some writers have expressed concern over the possibility that self-report measures of adult attachment are simply assessing relationship satisfaction (Bartholomew, 1994). Although security is correlated with relationship satisfaction, whether assessed with the AAI or with self-report attachment measures, the average magnitude of the correlation in the case of self-report attachment measures is only about .30 (e.g., Kunce & Shaver, 1994; Senchak & Leonard, 1992; Simpson, 1990). Secure people tend to be in relationships in which they are happy and satisfied, but the correlation is not high enough to suggest that self-report measures of attachment and measures of satisfaction assess the same construct. Another reason for believing that self-report measures of attachment security do not simply assess relationship satisfaction is that they show associations with other theoretically meaningful variables even when individuals are not currently involved in a romantic or couple relationship. Another factor related to close-relationship phenomena is physical attractiveness (Hatfield & Sprecher, 1986). But Tidwell and colleagues (1996) found no association between physical attractiveness (rated from photographs) and adult attachment style.

A great deal of research on adult personality has pointed to a five-factor model of personality (John, 1990; McCrae & Costa, 1990), with the factors being neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. Thus questions arise concerning how the two major attachment dimensions fit into this structure and whether they are redundant with one or more of the five factors. Noftle and Shaver (2006) examined associations between the five traits and the attachment dimensions in over 8,000 students; they found that the anxiety dimension was correlated about .42 with neuroticism, and that avoidance was correlated approximately –.22 with agreeableness. Thus the attachment dimensions, when assessed via self-reports, share variance with some of the major personality traits, but they are not simply redundant with those traits. In fact, many experimental studies of attachment processes (e.g., Mikulincer et al., 2002) find associations between the attachment dimensions and theoretically predicted outcome variables, including behavior, when, for example, neuroticism is statistically partialed out. Even in uncontrolled survey studies, the attachment variables predict relationship outcomes better than the "Big Five" trait variables (e.g., Noftle & Shaver, 2006; Shaver & Brennan, 1992). Self-report measures of adult attachment are also largely independent of verbal intelligence and social desirability response set (Fraley et al., 1998; Kunce & Shaver, 1994; Mikulincer & Orbach, 1995).

DISCUSSION

From a topic area that hardly existed before 1985, the study of adult attachment has grown over the past 20 years to become one of the most active and visible areas in developmental, social, personality, and clinical psychology. Between 1985 and 2007, nearly 1,000 journal articles dealing with "adult attachment" were published. In general, the findings obtained by adult attachment researchers have been interesting, consistent, and compatible with Bowlby's and Ainsworth's theories. Nevertheless, the issue of measurement continues to present serious challenges. One problem is the lack of convergence among different measures of adult attachment. A number of studies have included more than one measure of some aspect of adult attachment, including measures that tap different relational domains (e.g., relationships with parents, peers, or romantic partners) and embody different methods (e.g., coded interviews, self-report questionnaires). In the initial version of this chapter, published in the first edition of the *Handbook of Attachment*, we reported an informal meta-analysis of such studies. The results indicated that the correlation between any two measures of adult attachment were affected both by domain (i.e., whether the measures were designed to assess some aspect of romantic relationships or some aspect of relationships with parents) and by method (i.e., whether the measures were based on interviews or self-report). The correlation between different measures of security tended to be greater when there was a match between the methods used (e.g., both measures were based on self-report or both on interviews) and when there was a match in domains (e.g., both measures focused on parental representations or both on romantic representations).

One important example of this patterning is that the two most commonly used types of adult attachment measures (i.e., self-reports of the attachment dimensions and classifications based on the AAI) have only a very weak association. And this happens despite the fact that the two kinds of measures sometimes have similar correlations with other variables (e.g., Granqvist & Kirkpatrick, Chapter 38, this volume; Simpson et al., 2002). Roisman, Holland, and colleagues (2007) recently published a meta-analysis of all available studies that included both the AAI and some self-report measure of adult attachment. Aggregating data from over 900 individuals, they found a correlation of only .09, which is small by the frequently used standards proposed by Cohen (1992). Moreover, in those particular studies they found that although both measures predicted important aspects of close relationship functioning in adulthood, they did not necessarily predict the same kinds of outcomes in the same ways.

For example, in predicting interpersonal collaboration, the AAI seemed to function as a general interpersonal asset; highly autonomous or secure individuals were more likely to be collaborative in their laboratory interactions with their partners—which is not surprising when one considers that the AAI itself is measuring, in part, the ability and willingness of an interviewee to collaborate with an interviewer (see Hesse, Chapter 25, this volume). The attachment dimensions, in contrast, functioned more like what would be expected from a diathesis–stress perspective on attachment dynamics (e.g., Simpson & Rholes, 1998). Anxiety and avoidance were related to less collaborative interactions, but only among individuals who appraised the interaction as stressful or threatening to begin with (and, we suppose, were more *likely* to have their attachment systems activated).

Another reason for tension between researchers who use different measures of attachment is that the AAI is generally considered to be a measure of unconscious aspects of attachment-related defenses and behaviors, whereas the self-report measures are often taken to be measures only of conscious processes, since people are simply asked to answer questions based on their conscious assessments of their feelings and behaviors in close relationships. Mikulincer and Shaver, however, have conducted and reviewed numerous studies in which measures of unconscious processes (e.g., the TAT, the Rorschach, reactions to Stroop and lexical decision tasks, coded dreams, various kinds of inadvertent behavior) were systematically and predictably related to self-report measures of adult attachment (Mikulincer & Shaver, 2007, Ch. 4; Mikulincer & Shaver, Chapter 23, this volume; Shaver & Mikulincer, 2002a, 2002b, 2004). Thus the self-report measures are obviously tapping aspects of a person that are systematically associated with unconscious processes.

Although we still do not fully understand how the different measures work and why, or precisely what they measure (as inferred from their broad and largely different nomothetic networks), it is clear that they should not be viewed as substitutes for each other in particular kinds of research. We therefore encourage researchers to use assessment techniques that are most relevant to the kind of relationship or attachment-related processes they wish to study. For example, if a researcher is interested in studying romantic attachment dynamics, he or she should use either one of the multi-item self-report measures (e.g., the ECR or ECR-R) or one of the relationship interview techniques (Crowell and Owen's CRI, or Cowan and colleagues' CAI). If the focus is on coherent communication and behavioral coordination or collaboration between partners, the AAI is likely to provide stronger associations. If the focus is on relationship-related emotions and behavior under stressful circumstances, especially as experienced and reported by the person him- or herself, the self-report measures are likely to yield stronger associations. If the focus is on all of these things at once, it is possible that the two kinds of measures will both produce useful findings and insights, but they may do so without correlating with each other very highly. Investigators interested in assessing the common variance underlying adolescents' and adults' various attachment orientations will have to assess attachment variation across multiple relationship domains (e.g., parents, close friends, romantic partners), preferably by using a variety of methods (e.g., self-reports, interviews) and latent structural modeling techniques (see Griffin & Bartholomew, 1994b).

As we have explained throughout this chapter, each measure was developed for a particular purpose. Therefore, in determining which one or more instruments to use for a particular study, a researcher should consider the theoretical assumptions underlying each instrument. The AAI classifies an adult's generalized representation of attachment based on his or her current "state of mind with respect to attachment," as inferred from narrative measures of experiences with parents during childhood—measures that require a collaborative interaction with an interviewer. Its focus on discourse is based on the assumption that the ability to describe secure-base experiences reflects either the nature of those experiences or, in the case of those who have "earned security," the ability to understand them in a coherent and believable way. It is a rich and well-validated measure. Nevertheless, the AAI is expensive and difficult to score.

The AHQ, the IPPA, and the Reciprocal Attachment Questionnaire for Adults were developed to assess attachment history, relationship behaviors, and feelings of security in relationships with parents and peers, but they were not designed to tap the attachment patterns observed in infants and children by Ainsworth and colleagues (1978). In contrast, the self-report romantic attachment measures were designed to assess patterns such as those described by Ainsworth and her colleagues, under the assumption that these patterns reflect variation in the organization of the attachment system at any age. The self-report measures assume that people can accurately describe some of their thoughts, feelings, and behaviors in romantic or other close relationships. Such measures are not ideal for investigating mechanisms and strategies per se, but they have been effectively used in conjunction with other techniques (such as psychophysiological, behavioral, and cognitive procedures) to uncover important aspects of intrapsychic processes and behavior in close relationships.

In summary, before choosing a measure to assess adult attachment, researchers should consider (1) the assumptions underlying each technique, and the conceptual connection between a technique and the concepts and propositions of attachment theory; and (2) the relationship domain to be investigated (e.g., parents, close friends, romantic partners). In light of the substantial differences among adult attachment measures, we urge caution in how researchers present their findings and in how they generalize across measures with respect to attachment theory. Furthermore, we encourage researchers to continue to investigate the many measurement issues inherent in the study of adult attachment. There is still a great deal of work to be done before we understand relations and nonrelations among the various instruments and the best ways to assess normative development and individual differences in adult attachment organization. We hope that this overview provides a useful basis for further exploration.

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