CHAPTER 30

Attachment Theory and Its Place in Contemporary Personality Theory and Research

R. Chris Fraley
Phillip R. Shaver

While working in a home for maladjusted and delinquent boys in the 1930s, John Bowlby was struck by the boys' difficulty in forming close emotional bonds with others. Some of the boys came across as cold, aloof, and compulsively self-reliant; others seemed clingy and unsure of themselves. After studying the family histories of the children, Bowlby learned that a disproportionate number of the boys had experienced severe disruptions in their early home lives. His observations led him to conclude that early parent–child relationships serve an important organizing role in human development, and that disruptions in these relationships can have profound consequences for behavior, not only in the short term, but in the long term as well (Bowlby, 1944).

To better understand the significance of early relationships and how they shape human development, Bowlby turned to a variety of literatures, including those pertaining to psychodynamic theory (Freud, 1933/1965, 1940), the emerging ethological models of the 1950s and 1960s (e.g., Hinde, 1966), cognitive-developmental psychology (e.g., Piaget, 1953), and the principles of control systems (e.g., Craik, 1943; Young, 1964). Over the next few decades he integrated ideas from each of these domains to forge a theoretical perspective now known as "attachment theory" (Bowlby, 1969/1982, 1973, 1980).

Bowlby's attachment theory has had an enormous impact on psychological science, in large part because it speaks to many of the enduring subjects that psychologists wish to understand: personality, emotions, relationships, love and loss, nature and nurture, and development. Moreover, it does so in a way that has multidisciplinary appeal, bringing together ideas and observations from social psychology, developmental psychology, behavioral neuroscience and psychobiology, animal behavior, and clinical psychology. Indeed, by many standards, attachment theory is a strong candidate for being considered a "Grand Theory" in contemporary psychology (Gillath, Karantzas, & Fraley, 2016).

Despite the theory's influence on psychological science more generally, it was slow to be embraced by personality psychologists. But over the last decade, this has begun to

change. Attachment research is now routinely featured in traditional outlets in personality psychology, including the *Journal of Personality and Social Psychology: Personality Processes and Individual Differences,* the *Journal of Personality,* the *European Journal of Personality,* and the *Journal of Research in Personality.* Moreover, the previous edition of this volume included the first chapter on attachment to be featured in a major handbook of personality science. Our objective in this chapter is to stimulate additional research at the interface of personality and attachment by outlining some of the contemporary debates in attachment theory and explaining how those debates are relevant to modern personality psychology. We begin with a brief overview of attachment theory, highlighting the origins of the theory and how attachment dynamics have been studied in infants and children. Next, we review modern extensions of attachment theory, focusing primarily on the study of attachment in adulthood as it was popularized by social/personality psychologists. Finally, we discuss some of the new and enduring challenges faced by attachment theory and explain how they can be informed by, and also inform, contemporary methods and debates in personality psychology.

A Brief Overview of Attachment Theory

The Attachment System

Bowlby developed attachment theory to explain the intense distress expressed by infants when separated from their parents. He observed that separated infants go to extraordinary lengths (e.g., crying, clinging, and frantically searching) either to prevent separation from, or reestablish proximity to, a missing parent. At the time of Bowlby's first writings, psychoanalytic theorists held that such emotional outbursts were manifestations of immature dependency, and many behaviorists thought that they were signs of dysfunctional parental reinforcements of dependency. Bowlby observed, however, that such expressions were common among otherwise well-functioning children who had been separated from their primary caregivers. Moreover, he noted that such expressions are common to a wide variety of mammalian species, suggesting that they serve an evolutionary function.

Drawing on ethological theory, Bowlby postulated that *attachment behaviors,* such as crying and searching, are adaptive responses to separation from a primary attachment figure—someone who has a history of providing support, protection, and care to the child. Because human infants, like other mammalian infants, cannot feed or protect themselves, they are highly dependent on the care and protection of "older and wiser" adults. Bowlby argued that over the course of evolutionary history, infants who were able to attract the attention of, and maintain proximity to, an attachment figure (i.e., by looking cute or by engaging in attachment behaviors) would be more likely to survive to a reproductive age. According to Bowlby, a motivational control system, which he called the *attachment behavioral system,* was gradually "designed" by natural selection to do just that.

The attachment behavioral system is an important concept in attachment theory, because it provides a conceptual bridge between ethological models of human development (e.g., Hinde, 1966) and modern theories of emotion regulation and personality (e.g., English, Eldesouky, & Gross, Chapter 24, this volume; see also Gillath et al., 2016; Mikulincer & Shaver, 2016). According to Bowlby, the attachment system essentially "asks" the following question: Is the attachment figure nearby, accessible, and attentive? If the child perceives the answer to be "yes," he or she feels loved, secure, and confident, and, behaviorally, is likely to explore his or her environment, play with others, and be sociable. If, however, the child perceives the answer to be "no," he or she experiences anxiety and, behaviorally, is likely to exhibit attachment behaviors ranging from simple visual searching to active following and vocal signaling (see Figure 30.1). These behaviors continue until either the child is able to reestablish a desirable level of physical or psychological proximity to the attachment figure, or the child wears down, as often happens in the context of a prolonged separation or loss. Bowlby believed that such experiences lead to despair and depression, and have the potential to shape the beliefs and expectations a child develops regarding

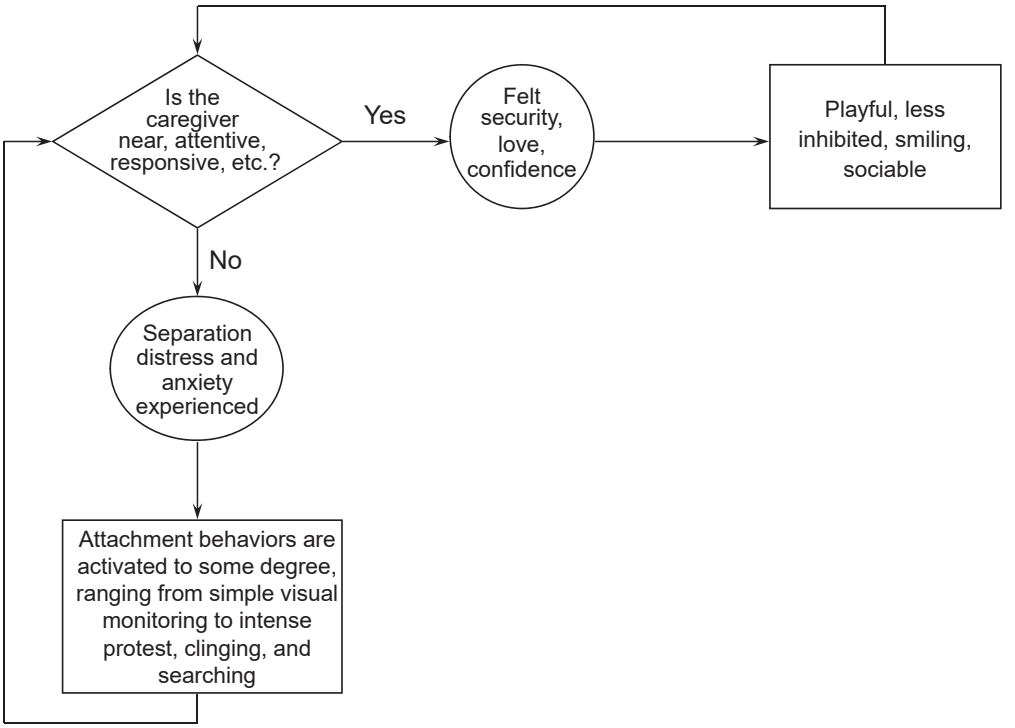

FIGURE 30.1. An illustration of the basic control mechanisms underlying Bowlby's conceptualization of the attachment behavioral system.

self-worth and the availability and accessibility of significant others.

Individual Differences in Infant Attachment Patterns

Although Bowlby believed that the basic processes illustrated in Figure 30.1 characterize the normative dynamics of the attachment behavioral system, he recognized that there are individual differences in the way children appraise the accessibility of their attachment figures and regulate their attachment behavior in response to a threat. However, it was not until his colleague, Mary Ainsworth, began to study infant–parent separations systematically that a more complete and empirically informed understanding of these individual differences was established. Ainsworth and her students (Ainsworth, Blehar, Waters, & Wall, 1978) developed a technique called the "Strange Situation" to study infant–parent attachment. In the Strange Situation, 12-month-old infants and their parents are brought to the laboratory and systematically separated and reunited in a series of 3-minute scripted episodes. Most children (i.e., about 60% in middle-class samples) behave in the way implied by Bowlby's normative theory; that is, they become upset when their parent leaves the room, but when he or she returns, they actively seek the parent and are easily comforted. Children who exhibit this pattern of behavior are often called *secure*.

Other children (about 20% or less) are ill at ease initially, and upon separation, become extremely distressed. When reunited with their parents, they have difficulty being soothed and often exhibit conflicting behaviors that suggest that they want to be comforted but also want to "punish" their parent for leaving. These children are often called *anxious–resistant*. The third pattern of attachment (shown by around 20% of children) is called *avoidant*. Avoidant children do not appear to be overly distressed by the separation and, upon reunion, actively avoid

seeking contact with their parent, sometimes turning their attention, somewhat rigidly, to toys on the laboratory floor.

Ainsworth's research is important for at least three reasons. First, she provided an early empirical demonstration of the ways in which attachment behavior is activated and terminated in threatening and safe contexts. As such, this work was critical for establishing that attachment behaviors not only reflect individual differences between children but are also natural responses to evolutionarily significant contextual triggers. Second, she provided the first empirical taxonomy of individual differences in infant attachment patterns. According to her research, at least three types of children exist: those who are secure in their relationship with their parents, those who are anxious–resistant, and those who are anxious–avoidant. These individual differences have become the focus of most empirical research conducted on attachment. We discuss the strengths and weakness of this particular taxonomy later, but for now we wish to highlight the fact that it was an important first step in studying individual differences in attachment.

Finally, and most importantly, Ainsworth demonstrated that these individual differences were predicted by infant–parent interactions in the home during the first year of life (i.e., before the Strange Situation assessments were made). Children classified as secure in the Strange Situation, for example, tended to have parents who were responsive to their needs. Children classified as insecure (i.e., as anxious–resistant or avoidant) often had parents who were insensitive to their needs, inconsistent, or rejecting and negligent in their care. These data provided early support for Bowlby's and Ainsworth's hypotheses about why some children develop secure relations and others develop insecure relations with their caregivers.

Working Models and Early Development

A central assumption of attachment theory is that individual differences in children's attachment patterns are partly a result of the many interactions they have had with their primary caregivers. Specifically, it is assumed that children develop mental representations or *working models* of themselves and others on the basis of how sensitive and responsive their caregivers are to their needs (see Bretherton & Munholland, 2016, for a review). When children reliably find that their caregivers are responsive to their signals of distress and are able to feel soothed by the caregiver's presence, they learn that other people can be counted on for support or protection. This facilitates the development of secure working models (i.e., conscious and unconscious mental representations) of attachment. In contrast, when children consistently find that their caregivers are unresponsive to their needs (e.g., when caregivers are inattentive or downplay their needs and vulnerabilities), they learn that others cannot be counted on. As a result, such a child develops insecure working models of attachment and may begin to organize his or her attachment behavior in a way that minimizes attachment-related needs or exaggerates them.

A great deal of research since Ainsworth's original studies has empirically tested some of attachment theory's claims about the origins of security and insecurity. Several longitudinal studies have documented associations between early maternal sensitivity and a child's attachment classification in the Strange Situation. For example, K. Grossmann and colleagues (K. Grossmann, Grossmann, Spangler, Suess, & Unzer, 1985) studied interactions between infants and their parents at home, and then later, when the infants were approximately a year old, brought them and their parents into the laboratory to participate in the Strange Situation. Children whose parents were rated as sensitive and responsive to their needs were more likely than other children to be classified as secure in the Strange Situation (see also Bates, Maslin, & Frankel, 1985; Isabella, 1993; Kiser, Bates, Maslin, & Bayles, 1986; see DeWolff & Van IJzendoorn, 1997, for a review).

The association between infant–parent interactions and security has also been established experimentally. In one particularly interesting study, Anisfeld, Casper, Nozyce, and Cunningham (1990) randomly assigned parents who were participating in a parenting class to receive either a cozy, strap-on baby carrier or a plastic infant seat with a safety belt (which had the consequence of

keeping the baby at a distance from the parents' bodies). Children whose parents had been assigned to the close-contact carrier condition were later more likely to be classified as secure in the Strange Situation than children whose parents received a plastic infant seat. Many experimental studies of nonhuman primates also demonstrate associations between maternal sensitivity and infant security and adaptation (Suomi, 2016), further suggesting that the infant–mother relationship can have effects on the way the child organizes his or her attachment behavior and regulates emotions.

Over the years, there have been debates regarding the extent to which the attachment classifications are "merely" reflections of child temperament instead of capturing something about the way in which children organize their emotions and behavior based on the history of interactions with that figure. We discuss this issue in more detail in a subsequent section, because this is relevant to understanding individual differences in adult attachment as well. For now, however, we note that some scholars have observed only modest overlap between attachment classifications when children are tested separately with their mothers and with their fathers (Fox, Kimmerly, & Schafer, 1991). This suggests that attachment classifications tend to be relationship-specific and, therefore, reflect the quality of the relationship between the infant and the parent. Moreover, most studies that have examined measures of temperament and attachment classifications have found weak or inconsistent associations between them (see Vaughn & Bost, 2016, for a review). This is not to say that temperament and parental relationships do not interact to affect a child's attachment classification (see, e.g., Mangelsdorf, Gunnar, Kestenbaum, Lang, & Andreas, 1990), but such findings indicate that attachment classifications are not simply an alternative way of measuring temperament.

Developmental Sequelae and the Canalization of Attachment

Over the past few decades there has been a great deal of developmental research on the implications of early attachment experiences for interpersonal functioning (e.g., K. E. Grossmann, Grossmann, & Waters, 2005; Weinfield, Sroufe, Egeland, & Carlson, 2008). Most of this research has focused on the longitudinal associations between parenting behavior or attachment classifications at 1 year of age and various later outcomes of developmental significance, such as ego resiliency, the ability to get along well and cooperate with peers, the ability to solve problems effectively, and psychopathology in adolescence (see Sroufe, Egeland, Carlson, & Collins, 2009, for a review). Although there are exceptions, the majority of published studies demonstrate that early attachment status is related to many outcomes of interest to psychologists, not only in early childhood but also in later adolescence and young adulthood (e.g., Roisman, Madsen, Hennighausen, Sroufe, & Collins, 2001). For example, Fraley, Roisman, and Haltigan (2013) found that sensitive caregiving in early childhood is consistently associated with behavioral and observational measures of social competence and academic achievement from kindergarten through age 15. Madigan, Brumariu, Villani, Atkinson, and Lyons-Ruth (2016) found, in a meta-analysis, that early attachment security predicts internalizing behavior and externalizing behavior in later childhood and adolescence (see also Groh, Roisman, Van IJzendoorn, Bakermans-Kranenburg, & Fearon, 2012).

Taken together, this and related research suggests that early attachment experiences have diverse implications for social and emotional development. Of course, there are varying perspectives on what those associations mean. The most common interpretation is captured by the *organizational* perspective (Sroufe, 1979) inspired by Bowlby's discussion of developmental pathways. The organizational perspective holds that early attachment experiences serve as a *foundation* on which subsequent experiences are built (e.g., Fraley & Roisman, 2015; Sroufe & Waters, 1977; Simpson, Collins, Farrell, & Raby, 2015). This foundation helps to organize or lend coherence to a variety of diverse social and emotional outcomes. For example, a child who develops the expectation that others are trustworthy and responsive, based on his or her early caregiving experiences, might enter into new social relationships (e.g., with family, teachers, or

playmates) with the expectation that others will behave in a benevolent manner. This, in turn, biases those interactions to be cooperative and rewarding, allowing relationships skills to develop and reinforcing existing attachment representations.

The organizational perspective on attachment has its origins in C. H. Waddington's (1957) discussion of the cybernetics of cell development. Waddington was a developmental embryologist who was attempting to understand how a cell maintains a particular developmental trajectory in the face of external disturbances. He and others had observed that once a cell begins to assume specific functions (e.g., becomes integrated into a structure that is destined to become the visual system), weak experimental interventions are unlikely to alter the cell's developmental trajectory. Although early in development a cell has the potential to assume many different fates, once a developmental trajectory becomes established, its pathway becomes "canalized" or buffered, to some degree, making it less and less likely that the cell will deviate from that developmental course.

The concept of canalization was central to Bowlby's ideas about stability and change in attachment patterns. In the context of personality development, Bowlby believed that once an individual started developing along a specific trajectory, there were a number of processes that would tend to canalize that pathway, making it increasingly unlikely that the person would change. Bowlby separated these processes into two broad categories. The first concerns the *caregiving environment*. To the extent that an individual's caregiving environment is stable, he or she is unlikely to experience interactions that challenge his or her representations of the world. Bowlby (1973) noted that many children have relatively stable caregiving environments which are reinforced at different levels of analysis: a parent provides a context for education, educational settings provide a context for the development of peer relations, and so on. Each of these can provide a "force" that helps to guide the developing child along a specific pathway.

Bowlby (1973) also discussed *intraindividual* or *psychodynamic* processes that can promote canalization. He noted that people often select their environments in ways that maximize the overlap between the psychological qualities of the situations and their experience-based expectations and preferences. Moreover, Bowlby argued, the mind generally assimilates new information into existing schemas rather than accommodating to it (an idea Bowlby borrowed from Piaget, whom he knew personally; see Collins & Read, 1994, for a discussion of this issue as it arises in the study of adult attachment and social cognition). Consistent with these ideas, empirical research has shown that people's working models influence the kinds of reactions they elicit from others (Arend, Gove, & Sroufe, 1979; Troy & Sroufe, 1987; Waters, Wippman, & Sroufe, 1979) and the kinds of inferences they make about people's intentions in experimental contexts (Brumbaugh & Fraley, 2006; Collins, 1996; Pierce, Sarason, & Sarason, 1992; Pietromonaco & Carnelley, 1994). Such dynamics allow working models to shape the kinds of interactions a person experiences, and in concert, help to maintain the individual's already partially canalized pathway through development. To the extent that an individual diverges from such a pathway, the changed route seems likely to be fairly close to its predecessor.

Attachment in Adults

Although Bowlby was primarily concerned with understanding the infant–caregiver relationship, he believed that attachment is relevant to understanding human experience from "the cradle to the grave." It was not until the mid-1980s, however, that researchers began to take seriously the possibility that attachment processes operate in adulthood in ways that go beyond what had been observed in infancy or childhood. Ideas about adult attachment were explored and developed in slightly different ways within different research traditions. Among developmental psychologists, researchers began to refine methods, such as the Adult Attachment Interview (AAI; Main, Kaplan, & Cassidy, 1985; see review by Hesse, 2016), for understanding how young adults represent their early attachment experiences with parents. By studying transcripts based on hour-

long interviews, Main and her colleagues (1985) developed a means of predicting which parents would have secure children and which would have insecure children, as assessed in the Strange Situation.

Developmental research revealed that parents who are able to recall and describe their early experiences in a coherent fashion are more likely to have infants classified as "secure" in the Strange Situation. Such parents, called "secure and autonomous with respect to attachment," or just "secure," are able to collaborate effectively with the interviewer and provide accounts that are internally consistent. In contrast, other parents provide less coherent narratives and inconsistent information (e.g., describing their early relationships with parents as being "warm," yet narrating specific eavpisodes in which they felt neglected or unappreciated by their parents). Some adults tend to minimize the relevance of their parents, whereas others appear to be overly enmeshed in relationships with parents. The theme of developmental research on adult attachment is that experiences taking place in childhood have downstream implications for understanding a broad array of psychological outcomes, including social competence (e.g., Groh et al., 2014), peer relations (e.g., Pallini, Baiocco, Schneider, Madigan, & Atkinson, 2014), and psychopathology (e.g., DeKlyen & Greenberg, 2016). (See Hesse, 2016, and Crowell, Fraley, & Roisman, 2016, for in-depth reviews of developmental research using the AAI.)

Among social and personality psychologists, attachment theory was adopted as both a normative and an individual-differences approach to understanding the nature of close relationships, often of the romantic–sexual variety. Hazan and Shaver (1987) were among the first researchers to explore Bowlby's ideas in this context. They argued that the emotional bond that develops between adult romantic partners is partly a function of the same motivational system—the attachment behavioral system—that gives rise to the emotional bond between infants and their caregivers. Moreover, they observed that infant–parent and adult pair-bonds were similar in the following ways: (1) Both infants and adults feel safer when their attachment figure is nearby and responsive; (2) both engage in close, intimate, bodily contact; (3) both feel insecure when their attachment figure is separated from them and inaccessible; (4) both share discoveries with each other; (5) both engage in mutual eye contact, touch each other's faces gently or playfully, snuggle and embrace, and seem fascinated and preoccupied with each other; and (6) both tend to use a special kind of communication, called "motherese" in the infant–parent relationship and "baby talk" in romantic relationships (Shaver, Hazan, & Bradshaw, 1988). On the basis of these parallels, it was argued that many adult romantic relationships, like infant–caregiver relationships, are *attachments,* and that romantic love is a property of the attachment behavioral system, as well as the somewhat distinct motivational systems that give rise to caregiving and sexuality (Hazan & Shaver, 1987; Shaver et al., 1988). In short, one of the key themes of research in the social–personality tradition is that as people reach adolescence and adulthood, they begin to form attachment relationships with people other than their parents (e.g., peers, romantic partners). These relationships function in ways similar to infant–parent attachments and, as such, can be understood using the same concepts and theoretical principles.

The Structure of Individual Differences in Adult Attachment

Although modern research on adult attachment is rooted in the notion that the attachment behavioral system is just as relevant for understanding behavior, thought, and affect in adults as it is in children, the majority of research on adult attachment has emphasized individual differences in the way the attachment system is organized. The earliest research on adult attachment examined associations between individual differences in adult attachment and the way people think about their romantic relationships. Hazan and Shaver (1987) developed a simple questionnaire to measure these individual differences by asking participants to indicate which of the following paragraphs best characterize how they think, feel, and behave in close relationships:

A. 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.
B. 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.
C. 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.

Hazan and Shaver (1987) found that the frequencies of endorsing the three categories were similar to the frequencies observed in middle-class samples of infants in the Strange Situation: About 56% of adults classified themselves as secure (paragraph B), about 25% as avoidant (paragraph A), and about 19% as anxious–resistant (paragraph C).

Although this measure was useful for documenting the association between what are now called "attachment styles" and relationship functioning, it did not allow a full test of the hypothesis that the same kinds of individual differences observed in infants might also be evident in adults. Researchers have explored this hypothesis in a variety of ways in subsequent research. For example, Brennan, Clark, and Shaver (1998) collected a large number of statements conceptually related to attachment (e.g., "I believe that others will be there for me when I need them"), correlated people's responses on them, and determined their underlying structure using factor analysis. Their findings indicated that there are two major dimensions: attachment-related anxiety and attachment-related avoidance (see Figure 30.2). People with high scores on attachment-related anxiety tend to worry whether their relationship partner is avail-

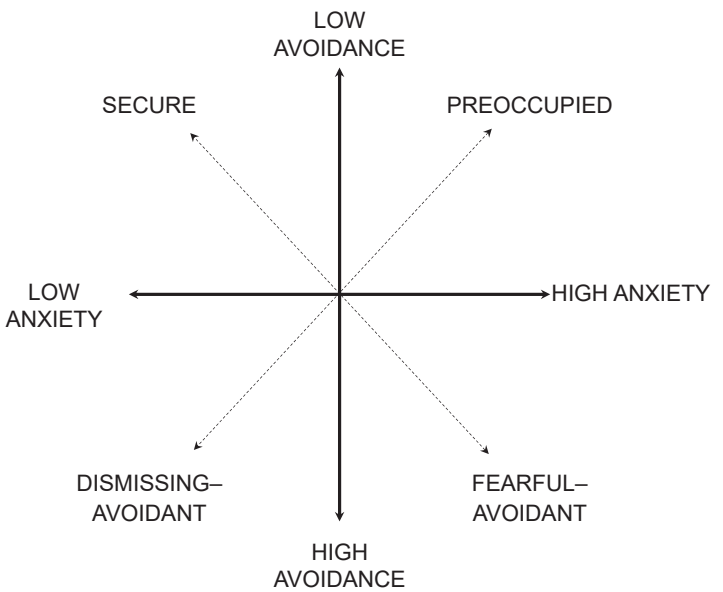

FIGURE 30.2. The two-dimensional model that is commonly used in contemporary social–personality research to conceptualize and partition individual differences in adult attachment. The cardinal lines represent the dimensions of attachment-related anxiety and avoidance, as described by Brennan et al. (1998). The diagonal lines capture the four prototypes described by Bartholomew and Horowitz (1991).

able, attentive, and responsive. People who score low on this dimension are more secure in the way they perceive their partner's responsiveness and availability. People who score high on attachment-related avoidance prefer not to rely on others or open up emotionally to them. People who score low are more comfortable being intimate with others and relying on them for comfort and support. People who score low on both dimensions are considered to have a secure attachment style. The most popular measures of adult attachment style in the social–personality tradition are Brennan and colleagues' (1998) Experiences in Close Relationships (ECR) and Fraley, Waller, and Brennan's (2000) Experiences in Close Relationships—Revised (ECR-R), a slightly revised version of the ECR, based on item response theory. Both self-report instruments provide continuous scores on attachment-related anxiety and avoidance.

Individual Differences in Attachment in Adulthood and Their Role in Thought, Feeling, and Behavior

Over the past three decades, there has been an enormous amount of empirical research on adult attachment. Much of this research is reviewed in Cassidy and Shaver (2016), Gillath et al. (2016), and Mikulincer and Shaver (2016), so we do not review it here. We do, however, want to call attention to the broad scope of this research. (Here, and in the remainder of the chapter, we focus on research conducted in the social-psychological tradition rather in the developmental/AAI tradition.) For example, research at the interface of adult attachment and developmental psychology has examined the ways in which attachment styles are related to people's attitudes about parenthood (see Jones, Cassidy, & Shaver, 2014, for a review). Insecure adults, for example, are less likely than secure adults to feel competent in their roles as parents (Caldwell, Shaver, Li, & Minzenberg, 2011), and they feel less satisfied in their relationships with their children (La Valley & Guerrero, 2010). In addition, observational research indicates that secure adults are more likely than insecure adults to provide effective support when their children are tasked with solving challenging puzzles in the laboratory (Rholes, Simpson, & Blakely, 1995).

As can be seen in Table 30.1, attachment theory has been used in virtually every area of modern psychology, including clinical, developmental, industrial–organizational, social, cognitive, and neuroscience. When researchers initially began studying adult attachment in the middle to late 1980s, the majority of research focused on attachment styles in the context of interpersonal attraction and close relationships. The framework has now expanded considerably, and attachment theory and research are now featured in all areas of contemporary psychological science.

Attachment Theory and Contemporary Personality Research

In the following sections, we discuss contemporary issues in attachment research that we believe are likely to be of special interest to personality psychologists (e.g., the relation between personality traits and attachment styles). In the process, we hope to call attention to the many points of overlap between the rest of contemporary personality research and adult attachment theory, thereby paving the way for further integrative work. Attachment theory has the advantage of bringing a rich, coherent theoretical framework to the table, but this does not mean that it provides answers to all the important questions or that there are no ambiguities in specific strands of the theoretical network. By highlighting some of these loose ends, we hope to inspire future research that leverages the creativity and methodological talents of modern personality psychologists.

Consistency across Situations

Attachment researchers typically conceptualize attachment-related working models (cognitive–affective schemas) as generalized representations that capture broad relational themes common to diverse interpersonal experiences. This approach, which has sometimes been referred to as a "trait" approach (Kobak, 1994; Lewis, 1994), has obvious parallels to the trait concept in personality research, and it is popular for a number of

TABLE 30.1. A Brief Overview of Attachment Research Interfacing with Multiple Areas of Psychological Science

Domain	Example study or review
Cognitive processes	
Attachment avoidance is related to the suppression of attachment-related information, but in ways that are constrained by cognitive resources.	Mikulincer, Shaver, & Dolev (2004)
Attachment anxiety is associated with the production of false memories about interpersonal information.	Hudson & Fraley (2018)
Attachment insecurity is associated with making negative attributions about a partner's ambiguous behavior.	Collins (1996)
Industrial–organizational	
Attachment anxiety is associated with to job-related burnout.	Vîrgâ, Schaufeli, Taris, van Beek, & Sulea (2019)
Leaders' attachment anxiety is associated with more self-serving leadership motives and poor leadership qualities in task-oriented situations.	Harms (2011); Davidovitz, Mikulincer, Shaver, Izsak, & Popper (2007)
The association between fit perceptions and job satisfaction is weaker for highly avoidant employees.	Dahling & Librizzi (2015)
People high in attachment avoidance are less likely to engage in organizational citizenship behaviors.	Harms, Bai, & Han (2016)
Developmental	
Attachment styles are relatively stable in adolescence, but less so among teens from families characterized by parental separation or divorce.	Jones et al. (2018)
Attachment is related to a variety of parenting behaviors and attitudes, including feelings of closeness to children, desire to have children, parental satisfaction, and parental sensitivity.	Jones, Cassidy, & Shaver (2015)
Clinical and psychopathology	
Attachment insecurity is associated with psychosis.	Carr, Hardy, & Fornells-Ambrojo (2018)
Secure individuals are less likely than others to experience symptoms of posttraumatic stress disorder and depression following traumatic experiences.	Fraley, Fazzari, Bonanno, & Dekel (2006)
Avoidant adults are more likely to rapidly respond to danger, whereas anxious adults are more likely to quickly and accurately detect environmental threats.	Ein-Dor (2015)
Attachment styles are related to personality disorders.	Fossati et al. (2015)
Attachment theory has informed a variety of approaches to treatment.	Mikulincer, Shaver, & Berant (2013)

(continued)

TABLE 30.1. *(continued)*

Domain	Example study or review
Social and close relationships	
Attachment anxiety is associated with decreases in sexual desire in early relationships.	Mizrahi, Reis, Maniaci, & Birnbaum (2019)
Secure individuals are more likely to report satisfaction, investment, and commitment in their romantic relationships	Segal & Fraley (2016)
Avoidant spouses perceive themselves as being less responsive in conflict situations and perceive their spouses as being less responsive.	Beck, Pietromonaco, DeVito, Powers, & Boyle (2014)
Attachment anxiety is associated with verbal disfluencies and interpersonal awkwardness in early dating contexts.	McClure & Lydon (2014)
Attachment insecurity is related to endorsing short-term mating strategies.	Schmitt (2005)
Attachment related to self-regulatory processes.	Orehek, Vazeou-Nieuwenhuis, Quick, & Weaverling (2017)
Attachment related to caregiving behavior and social support.	Feeney, Collins, Van Vleet, & Tomlinson (2013)
Health	
Attachment insecurity associated with markers of inflammation, such as interleukin (IL-6).	Ehrlich et al. (2019)
People high in attachment avoidance showed higher cortisol levels when entering the lab and during the discussion but recovered rapidly when the discussion ended.	Powers, Pietromonaco, Gunlicks, & Sayer (2006)
Couples with anxious wives and avoidant husbands showed physiological reactivity (sharp cortisol changes) in anticipation of conflict.	Beck, Pietromonaco, DeBuse, Powers, & Sayer (2013)
Anxious individuals report poorer physical health, including more bodily pain, more medical symptoms, and impaired daily functioning.	Stanton & Campbell (2014)
Insecure attachment is related to risky behavior, such as risky drinking and a decreased likelihood of using condoms.	Matson, Levy, Chung, & Ellen (2014); Strachman & Impett (2009)

reasons. For one, if early childhood experiences with caregivers result in the formation of cognitive structures that are relatively general and stable, then these structures could be the basis for the continuity and coherence people display in their many close relationships. Although there are undoubtedly variations from one relationship to another in how a person relates to significant others, a trait perspective implies that there is likely to be a common thread tying together the individual's thoughts, feelings, and behavior across different relationships and contexts.

Despite its appeal, the trait approach to attachment has been criticized on at least two grounds. First, researchers have observed that people exhibit different attachment patterns in different relationships. Baldwin, Keelan, Fehr, Ennis, and Koh-Rangarajoo (1996), for example, demonstrated that there is considerable within-person variability in the expectations and beliefs that people hold

about different significant others. A person may consider his spouse to be warm, affectionate, and responsive, while simultaneously viewing his mother as cold, rejecting, and aloof. The fact that substantial within-person variation (i.e., "inconsistency") exists in the way people relate to others raises a number of questions about how working models should be conceptualized in attachment theory.

This problem will be familiar to most personality researchers. Over 40 years ago, Walter Mischel (1968) published a review of the field that is now best remembered for its critique of trait models of personality. According to Mischel's interpretation of the evidence, the correlations among measures of behavior from one situation to the next were lower than expected, leading him to question the usefulness of the trait concept (see Ahadi & Diener, 1989, for alternative interpretations).

Attachment researchers have offered several potential solutions to the *inconsistency issue* in the study of attachment. One popular proposal has been that people hold different working models of different relationships, and that different models can exist at different levels of abstraction or generalization (e.g., Collins, Guichard, Ford, & Feeney, 2004; Overall, Fletcher, & Friesen, 2003; Sibley & Overall, 2008). For example, people may hold relatively global representations of their "parents," but they also hold relationship-specific representations of their mothers and fathers. Thus, it is possible for the same person to exhibit varying degrees of security in relationships with two parents, assuming that there is a different history of security and support in the two relationships.

From this point of view, the challenge for attachment researchers is not to explain why people experience different degrees of security in their various relationships, but why there is some degree of consistency across relationships when each relationship has its own unique qualities. One possibility, reviewed by Collins and her colleagues (2004), is that in addition to forming relationship-specific representations, people develop a more abstract, global representation that captures some kind of "weighted average" of their experiences. Indeed, theoretical work on this possibility, using connectionist simulations, suggests that mental systems easily extract the "gist" or themes that are common to many different experiences, and that these more abstract representations can be used to guide the model's response to new and ambiguous targets (Fraley, 2007). As a result, behavior in any one context can be driven both by global or abstract representations, and by ones that are more specific to the relationship in question. The global representation is part of what creates similarity in a person's thoughts and feelings across relationships (and thus acts as a latent factor, in a psychometric sense), whereas the relationship-specific representation captures knowledge and strategies for managing specific relationships (and thus explains relationship-specific variance).

Another explanation for the presence of some consistency across relationship partners is developmental in nature. If a relationship-specific representation is forged partly on the basis of those that already exist, we would expect a modest degree of association in security across different relationships. For example, if one relationship-specific representation (pertaining to one's mother, say) was constructed before another (i.e., pertaining to one's romantic relationship partner), and if the former played a role in shaping the latter, then the two sets of relational experiences would be similar (and, thus, correlated across targets). In this scenario, there need not be a global model or "trait" (although there is no reason why there could not be); the similarities among representations of different relationships exist because existing models played a causal (but incomplete) role in shaping the development of new models. Nonetheless, the statistical associations among security measures with respect to different relational domains will be imperfect, because the different relationships are unique and have their own interpersonal histories.

Social-cognitive research on transference suggests that these kinds of dynamics occur and can be set in motion relatively easily with simple laboratory stimuli (e.g., Andersen & Chen, 2002). For example, when asked to rate how secure people feel with potential mates described in personal ads, participants were more likely to feel secure with

the people described in the ads when those ads had been constructed, unbeknownst to the research subjects, to resemble a former attachment figure (Brumbaugh, 2017; Brumbaugh & Fraley, 2006). This finding indicates that existing working models can be used to guide the interpretation of new experiences, thereby creating a degree of consistency across working models.

These ideas bear on the consistency debate in personality psychology. In mainstream personality psychology, most of the initial responses to Mischel's arguments were "defensive" in nature—attempts to explain why Mischel was misrepresenting the facts rather than attempts to understand how it is that people can exhibit coherence in their thoughts, feelings, and behavior without necessarily behaving in identical ways across situations. Some proposals, for example, focused on the fact that the expected correlation between two "samples" of behavior should be relatively small, as expected from the psychometric principles of classical test theory, but that such correlations will increase as more and more instances are aggregated (Epstein, 1979, 1980). Other proposals focused on the idiosyncratic meaning of trait terms and how some traits might be relevant to some people while being irrelevant to others (thereby making their behavior less consistent across situations; see Bem & Allen, 1974; for a discussion, see Baumeister & Tice, 1988).

One of the more recent rapprochements has come from Mischel himself. Mischel and Shoda's (1995; Ayduk & Mendoza-Denton, Chapter 19, this volume) cognitive–affective processing system (i.e., CAPS) model assumes that an important aspect of personality is the "if–then" associations people hold. A person can behave in a way that appears inconsistent if a researcher simply aggregates measures of honesty across situations, but the person may in fact be behaving in a way that is perfectly consistent with the way his or her associations are organized. The CAPS framework is similar to ones that have been adopted in the study of attachment, although the attachment approach incorporates traditional trait-like concepts (e.g., attachment styles, general working models) with more contextually specific factors, rather than removing trait-like constructs entirely. Indeed, theoretical simulations demonstrate that a connectionist cognitive system can construct both global representations and if–then representations in parallel, and that both kinds of representations can be used to guide behavior in new situations (Fraley, 2007). It should therefore be possible for personality researchers to consider models that enable traits and more dynamic and situation-specific aspects of personality to exist simultaneously.

Although additional solutions to the person–situation debate have been put forward (e.g., Fleeson's [2001]), the CAPS model is of special interest because it resembles ideas advanced by Bowlby (1969/1982, 1973, 1980) years before in his discussion of how working models are constructed and shape human experience. Moreover, some attachment researchers have explicitly embraced the CAPS framework as a means of understanding attachment dynamics in adult relationships (e.g., Zayas, Shoda, & Ayduk, 2002). Ultimately, the way each person thinks, feels, and behaves in the relationship can be understood as lawful, but to capture some of this nuance, researchers need to attend to not only the variance that is common across relationships, but also the variance that is specific to each relationship that a person has.

Antecedents of Adult Attachment: Why Are Some People More Secure Than Others?

One of the fundamental questions in adult attachment research is what makes people secure or insecure in the ways they relate to significant others. As reviewed previously, one of the core assumptions of attachment theory is that these individual differences reflect variations in the working models that people hold about themselves and close others—working models that have been constructed over the course of people's lives.

We have briefly reviewed some of the classic work on how early caregiving experiences shape the development of attachment patterns in early childhood. Correlational, experimental, and longitudinal studies all suggest that the quality of early caregiving experiences plays a role in shaping how secure children become. Our goal in this section is to review some of the research on how

these experiences translate into outcomes later in adulthood. There is an enormous amount of interest in these issues in contemporary psychology, because many of the infant and child participants in longitudinal studies that were inspired by Bowlby and Ainsworth's ideas decades ago have come of age in recent years (e.g., Chopik, Moors, & Edelstein, 2014; Fraley, Roisman, Booth-LaForce, Owen, & Holland, 2013; Salo, Jokela, Lehtimäki, Keltikangas-Järvinen, 2011; Zayas, Mischel, Shoda, & Aber, 2011). As a result, we have learned a great deal about the development of attachment and attachment-relevant outcomes since the previous edition of this chapter was written.

In one of the foundational papers in this new generation of longitudinal projects, Simpson, Collins, Tran, and Haydon (2007) analyzed data from 78 individuals who had been followed from infancy to adulthood (ages 20–23 years). Simpson and his colleagues found that early attachment security, assessed in the Strange Situation, was related to social competence in childhood, which in turn was related to friendship quality in adolescence, and still later, predicted positive emotional experiences in close relationships at age 23. Based on these findings, Simpson and his colleagues suggested that early attachment experiences have the potential to indirectly shape later interpersonal outcomes. Importantly, the process they described is not deterministic (e.g., some proportion of secure children enter into poorly functioning friendships). But, when stepping back and viewing development through a longitudinal lens, it is possible to see how early interpersonal processes trickle down into other domains of life, pushing people along some pathways rather than others.

In another important study, Dinero, Conger, Shaver, Widaman, and Larsen-Rife (2008) studied the quality of observed interactions between approximately 250 adolescents and their parents over a period of 10 years. They found that the quality of parent–adolescent interactions at age 15 predicted attachment security at age 25 after controlling for assessments of security at age 15. This research was important for at least two reasons. First, the work took into account the autoregressive nature of attachment security, showing that, despite the "intrinsic" stability of attachment, interpersonal experiences at one point in time have the potential to predict what people will be like at another point in time. Second, the work emphasized the role of adolescence rather than early childhood exclusively. We elaborate on this point in subsequent sections, but for now we wish to make clear that attachment theory emphasizes the role of attachment experiences *across* development and not merely those experiences that take place in early childhood.

In another intensive investigation, Fraley and his colleagues (2013) analyzed data from the National Institute of Child Health and Human Development (NICHD) Study of Early Child Care and Youth Development. The children in this sample were originally assessed when they were 1 month of age. Importantly, they have been reassessed multiple times, with in-depth assessments of the quality of the caregiving environment (i.e., observed maternal sensitivity, maternal depression, father absence) and the quality of friendship relationships. At age 18, these children completed self-report measures of adult attachment style. Children who were relatively secure at age 18 were more likely to have had a developmental history characterized by increasingly high-quality caregiving and friendship relationships. For example, at age 18, those who were relatively secure were likely to have mothers who showed increases in sensitivity over time and decreases in depression, increases in social competence, and ever-improving friendship relationships.

Taken together, these studies suggest that one reason some people are more secure than others is that they have experienced a history of warm and responsive interactions with others—both parents and peers. Although such studies do not demonstrate that these experiences have a causal influence on the development of adult attachment styles (we discuss alternative explanations below), they help to fill a key gap that has been missing in the attachment literature.

Differentiation and Its Implications for Understanding Attachment Development

One of the challenges for future research is to understand why the same person can be

secure in some relational contexts but insecure in others. Attachment theory clearly assumes that if an individual has a relatively secure relationship with his or her parents and friends, then he or she is biased toward developing a secure relationship with a new romantic partner. If that partner begins to be unresponsive or unsupportive, however, it seems unlikely that the individual will persist fully in maintaining a secure representation of the partner. Gradually, or perhaps even abruptly, the representation should evolve to include doubts about the partner's responsiveness and commitment to the relationship.

One of the important questions for theory and research concerns the fate of "other" attachment representations in the face of relationship-specific changes. What happens, for example, to a person's representations of his or her parents when a nonparental relationship (e.g., a romantic one) takes a turn for the worse? It is possible that changes in one relational domain do not carry over laterally to other domains. And, if they do, it is possible that such changes are merely fleeting.

The Role of Early Experience

Simpson and his colleagues (2007, 2015) proposed that early caregiving experiences influence attachment-relevant outcomes later in life via indirect pathways. Specifically, they proposed that early attachment experiences shape the child's developing social competence, which in turn shapes the quality of the child's relationships with peers. Those experiences then contribute to the way attachment processes unfold in adulthood.

There are a few important implications of this framework. First, when taken at face value, it implies that if one is trying to understand what factors contribute the most to adult attachment processes, the factors most proximate to the outcomes of interest should be the most consequential. Specifically, adult attachment outcomes should be better explained by interpersonal experiences in adulthood or early adolescence than early childhood per se. Thus, although early experiences are believed to play a role in shaping the *foundations* for what is to come next, their effects have the potential to be overshadowed by ongoing interpersonal experiences as people develop.

Having said this, some studies suggest that early experiences continue to play a role in shaping some attachment-relevant outcomes—above and beyond more recent experiences. We highlight these studies not because we wish to argue that early experiences can have powerful implications for understanding individual differences in adult attachment, but because they offer valuable nuance regarding how investigators might go about understanding the role of early experiences in shaping later outcomes—implications that could apply to personality research more generally. In one such study, Raby, Roisman, Fraley, and Simpson (2015) found that the quality of early caregiving experiences in children was weakly related to social competence at age 4. But, importantly, the magnitude of that association was relatively constant across time (r = .17), with similar effects at ages 10, 23, and 32. This raises the intriguing possibility that, even if recent experiences play a more powerful role in shaping later outcomes than early experiences, those early experiences might not be fully inert; they may continue to contribute to attachment dynamics later in life.

How might this happen? One possibility involves the canalization processes we described earlier in this chapter: As development unfolds, people's developmental trajectories become increasingly entrenched. It is possible that persistent environmental conditions early in life may leave a more enduring mark on the developing individual than similar such conditions taking place later, because the brain, for example, is more plastic early in childhood and adolescence than it is later on (Casey, Tottenham, Liston, & Durston, 2005).

This is not to say that early experiences necessarily leave an immutable mark on the developing person, or that later experiences are not influential. To reconcile these tensions, we have found it useful to conceptualize development as a balancing act between forces that push for socialization (environments shaping people) and selection (people shaping their environments). Fraley and Brumbaugh (2004), for example, suggested that socialization dynamics tend to take pre-

cedence in early childhood, then give way to selection dynamics as individuals develop. One consequence of this inequality is that recent experiences are more influential than distal experiences in shaping psychological outcomes. But distal experiences that take place in early childhood in particular (i.e., when socialization effects dominate) are more powerful than distal experiences that take place later.

We illustrate these developmental principles with an empirical example concerning parental divorce. Many scholars have studied the impact of parental divorce on children, because the context of divorce (both the events that precede it and those that follow it) often includes disruptions in the stability of the caregiving environment (Feeney & Monin, 2016). Research generally finds that children from divorced families experience more difficulties in psychological functioning. Because divorce is a reasonably discrete event, one can ask whether the timing of parental divorce matters in its relation to attachment functioning.

Fraley and Heffernan (2013) addressed this question in two large samples of adults. They found that at the time of assessment, adults were more insecure in their relationships with their parents if their parents had been recently divorced; that is, adults whose parents had divorced in the recent past were less likely to report that they had a secure relationship with their parents than those whose parents had divorced in the distant past. However, after controlling for how long ago the divorce took place, Fraley and Heffernan found that the timing of the divorce mattered, too: When parents divorced early in their children's lives (e.g., before the age of 5), those adult children were less secure in their current relationships with their parents than those whose parents divorced later in their children's lives. Stated differently, divorces that took place 20 years ago were less tied to current functioning than divorces that took place 20 months ago. But divorces that took place 20 years ago *in early childhood* were more influential than divorces that took place 20 years ago in later childhood.

These results suggest that both primacy and recency effects should be considered when studying the ways in which interpersonal experiences may shape the long-term development of attachment styles. People's current interpersonal context is the best candidate for understanding why people are secure or insecure in the here and now. And the further back one reaches, the less influential those distal experiences should be. But there is one potential exception: Experiences that take place in early childhood may be more powerful than similar experiences that take place later. That does not mean the effects are strong in an absolute sense, but their traces should be persistent.

Behavior Genetics and Adult Attachment

It is well-known that most individual-difference constructs are heritable. Using twin designs, researchers have found that about half of the differences between people in traits such as agreeableness or neuroticism can be accounted for by genetic differences between persons (Bleidorn, Kandler, & Caspi, 2014).

To date, a few studies have used twin designs to estimate the relative contribution of genetic, shared environmental, and nonshared environmental sources of variance to individual differences in adult attachment styles (Brussoni, Jang, Livesley, & Macbeth, 2000; Crawford et al., 2007; Donnellan, Burt, Levendosky, & Klump, 2008; Franz et al., 2011). The results vary across studies in part because they do not measure attachment in a consistent way. But the two studies (Donnellan et al., 2008; Franz et al., 2011) that used measures that most closely align with the multi-item scales commonly used in contemporary attachment research suggest that there is a sizable role (about 27–45%) for heritable variance in adult attachment. And, similar to the findings in the personality literature more broadly, there is little evidence that shared environmental factors (i.e., factors that are shared by twins growing up in the same family) contribute to individual differences in attachment style.

What are the implications of these findings? If we take them at face value, they suggest that what makes some people secure in their relationships reflects, at least in part, genetic differences among people. One source of controversy, however, is whether such estimates conflict with the assump-

tions of attachment theory (e.g., Barbaro, Boutwell, Barnes, & Shackelford, 2017). On the surface, it might seem that, if some portion of individual differences in attachment can be attributed to heritable differences between people, then either a careful examination of socialization processes (a) is not needed or (b) is irrelevant to understanding how people become who they are.

We think modern attachment theory is an interesting example of how a theory can be uncomfortably pulled by the tensions between behavior genetic and socialization models, while being misrepresented by both extremes. Our reading of Bowlby's original theory is that there is room for both heredity and socialization in personality development. Bowlby believed that there may be heritable differences between children that are related to the kinds of caregiving they receive and the experiences they have (Bowlby, 1973). But, importantly, he believed that those interpersonal interactions played a causal role in shaping and sustaining individual differences. In modern parlance, Bowlby believed that interpersonal experiences may *mediate* the relationship between genetic differences and attachment-related outcomes (see Briley et al., 2019, for a detailed discussion of how developmental and genetic models can be integrated to lead to new ways of understanding development).

We highlight this mediation hypothesis for two reasons. First, attachment theory is sometimes portrayed as disregarding the potential role of genetic factors in shaping attachment-related outcomes (e.g., Sherlock & Zietsch, 2018; Yarkoni, 2016). And although the majority of research on the etiology of individual differences in attachment does, in fact, ignore heritable factors, we believe that this neglect is not due to the belief that genetics are irrelevant; it is due to the assumption that genetic influences are more distal in the causal chain than interpersonal ones. Stated differently, the working assumption is that if heritable factors play a role in shaping relationship dynamics, those dynamics are primarily responsible for the working models people construct about their attachment relationships. Moreover, because some of the developmental research on attachment is motivated by concerns for social policy and child welfare, empirical effort has focused on identifying environmental factors that can be targeted in interventions (e.g., parental responsiveness training, creating safe environments).

Second, scholars sometimes assume that if there is evidence from twin designs of heritable variation in an outcome, then interpersonal factors (e.g., parenting, the responsiveness and availability of attachment figures) are not relevant for understanding that outcome. This conclusion implicitly assumes that genetic variation creates individual differences in people's experiences and in their attachment styles, *and* that there is no causal path between experience and attachment style.

In our view, empirical research is consistent with the idea that there are causal relations between people's interpersonal experiences and their attachment styles. When people are experimentally placed in situations in which they are made to feel vulnerable, neglected, or misunderstood by their partners, they tend to experience increases in insecurity (e.g., Carnelley, Otway, & Rowe, 2016). However, most of this research is based on short-term laboratory experiments. As a result, it is not clear whether the changes in attachment that have been observed are merely short-term deviations from people's attachment patterns or more enduring changes. Thus, an important direction for future research is to understand what kinds of factors influence attachment styles and whether those influences are transient or enduring (see Fraley et al., 2013).

In summary, although attachment researchers have generally overlooked heritable sources of variation in studying the origins of attachment styles, we believe this is a valuable area for future research. Indeed, investigating the genetic and environmental factors that underlie adult attachment patterns represents a more inclusive and promising approach than focusing on one etiological class of explanations alone. Moreover, contrary to some assumptions, we do not believe that the presence of heritable variation in twin studies implies that parenting or interpersonal factors are poor candidates for understanding attachment development. However, the fact that these sources of variance can be confounded does imply that sophisticated designs will be necessary for

studying the etiology of individual differences in attachment.

Some Further Considerations and Directions for Future Research on the Antecedents of Attachment Security

One of the themes we have emphasized in this chapter is that there is great value in conceptualizing and assessing attachment in a contextually sensitive way; that is, the way people relate to their parents does not wholly overlap with the way they relate to their romantic partners. We know that there are positive correlations across relational domains (which is why the concept of a generalized attachment style is defensible), but there is plenty of room for divergence in the ways people relate to different significant others in their lives. This within-person heterogeneity raises fascinating possibilities for understanding the behavior genetics of adult attachment. It is possible, for example, that heritable differences between people contribute to the shared variance across relational domains. If this is the case, it could be that the thread that connects relational patterns across domains has, in part, a genetic explanation, but that genetics do not explain what makes the same person different across domains.

Another issue that needs to be clarified in the future is age-related differences in genetic and environmental influences. In behavior genetics research on attachment and interpersonal relationships in childhood, researchers have consistently found relatively small estimates of genetic influence and sometimes sizable estimates of shared environmental influences (e.g., O'Connor & Croft, 2001; Roisman & Fraley, 2006). The measurement of attachment in childhood and adulthood is different, so we cannot assume that the weaker genetic estimates found for children reflects developmental processes rather than measurement differences. But these findings do raise the possibility that additive genetic factors come to play a larger role in explaining attachment differences as individuals move from childhood to adulthood (see, e.g., Barbaro et al., 2017, and Fearon, Shmueli-Goetz, Viding, Fonagy, & Plomin, 2014). This kind of pattern has also been observed for measures of cognitive ability, which show considerable shared environmental effects in early childhood but sizable genetic effects by early adulthood (Briley & Tucker-Drob, 2013). If this pattern actually applies to attachment, then understanding the relative contribution of genetic and environmental factors may require a focus on developmental processes that have not been fully addressed up to this point.

Another issue that requires further consideration is that as individuals transition from adolescence to adulthood, they increasingly use peers, as opposed to parents, as attachment figures (Fraley & Davis, 1997; Nickerson & Nagle, 2005). This opens the door for nonfamilial factors to shape attachment differences in ways that could diminish to role of influences from the family of origin. It is not clear, however, what role heritable factors play in this process. It could be the case, as suggested by the mediational process described previously, that people select themselves into relationships that are compatible with the working models they already hold. And to the extent that there is genetic variance underlying these, that variance will be reflected in additive genetic contributions to individual difference in behavior genetics models.

Another possibility is that the role of heritable factors will fade across time because, although selection processes may be active, socialization processes are also active, and people's attachment styles are partial reflections of experiences that are independent of existing representations (Fraley, 2002). Those nonshared experiences can accumulate to diminish the role of heritable factors in explaining differences between people.

We have highlighted these issues in some depth for a number of reasons. First, we are concerned that researchers will ignore the potentially confounding role of genes when trying to understand individual differences in attachment style. We would like for researchers to appreciate that alternative explanations exist and that considering them should make it possible to advance our understanding of attachment and its development.

But more importantly, we are genuinely enthusiastic about the work that can be done at the interface of behavior genetics and at-

tachment. One way to improve research on socialization is by using genetically informed designs that provide a way to tease apart nature and nurture (e.g., Roisman & Fraley, 2006). Regardless of whether one assumes that genes influence attachment, one can use genetically informed designs to conduct powerful research on environmental influences.

Finally, we believe that the integration of these research traditions provides an exciting way to bridge research on personality and attachment. Most discussions of the etiology of personality employ behavior genetics methods under the assumption that the question of *how* people came to be who they are boils down to "born that way" versus "not born that way." We believe that attachment theory provides a rich developmental legacy to serve as an excellent test case for understanding how genetic and environmental explanations can be integrated, tested, and used to advance knowledge of personality development. But to be successful, this enterprise requires investments from scholars with expertise in multiple areas, including behavior genetics, personality, development, and attachment.

What Is the Relation between Attachment and Trait Constructs?

One pressing issue for researchers working at the interface of attachment and personality is the association, both conceptual and empirical, between individual differences in attachment and personality traits, such as the Big Five dimensions (e.g., John, Chapter 2, this volume). Theoretically, the issue is not as clear-cut as some might wish. Bowlby (1973, p. 369) explicitly argued that a child's preexisting dispositions play a role in his or her responses to the environment; in some respects, they are responsible for the shape of the epigenetic stage upon which attachment relationships play out. But he also argued that the history of interactions between a child and his or her attachment figures is the more proximate and crucial determinant of the thoughts, feelings, and behaviors that the child's experiences in close relationships, regardless of the preexisting dispositions upon which they are layered.

In the lingo of contemporary personality psychology, it is unclear from Bowlby's writings whether he considered basic personality traits to be independent predictors of interpersonal behavior, the starting point in a mediated casual chain, a potential moderator of the relations between attachment and interpersonal behavior, or some combination of the above. Regardless, it is certain that Bowlby did not conceptualize individual differences in security as being "nothing more" than preexisting personality traits. In that spirit, it is worth noting that there has been a great deal of research over the past decade examining how individual differences in security predict various outcomes, after researchers statistically control for individuals' scores on measures of basic personality traits, such as neuroticism. For example, there is robust evidence that the relationships of secure individuals tend to be more stable than those of insecure people (either anxious or avoidant). Secure people also report higher levels of relationship satisfaction and adjustment relative to insecure people (see Mikulincer & Shaver, 2016, for a review). This pattern has been consistently obtained in studies of both dating and married couples and cannot be explained by other personality factors, such as the Big Five personality traits or self-esteem (Noftle & Shaver, 2006). Moreover, research on seemingly basic affective responses reveals that measures of attachment predict emotional reactions even when basic personality traits are controlled (e.g., Erez, Mikulincer, Van IJzendoorn, & Kroonenberg, 2008; Mikulincer, Gillath, & Shaver, 2002).

Despite the fact that individual differences in attachment are related to a variety of outcomes when basic personality traits are controlled, it is important to note that attachment and personality traits *are* related to one another in meaningful ways. Attachment anxiety, not surprisingly, is substantially correlated with neuroticism (*r*'s in the .40–.50 range), and avoidant attachment is often negatively correlated (e.g., *r*'s around –.20) with agreeableness and extraversion (see Noftle & Shaver, 2006, for a detailed review). As a result, the core individual differences in attachment can be located in the well-known five-dimensional space advocated in much contemporary personality

research. It seems unlikely, however, based on the evidence reviewed here, that these relations exist *because* the attachment dimensions are simply manifestations of the Big Five personality traits. In light of the previous discussion of the ways in which people can experience different levels of security with different significant others in their lives, it would be interesting for future research to examine the way relationship-specific measures of attachment relate to measures of basic personality traits and see whether basic personality traits are able to explain part of what is common across varying relationships.

Concluding Comments

Attachment theory arose from the psychoanalytic stream of personality theorizing, but because Bowlby was unusually open to emerging cognitive and ethological approaches to human and nonhuman primate behavior, and because he and Ainsworth were both empirically and theoretically oriented, the theory has remained open to other approaches and to subsequent theoretical and methodological developments. The theory spans several areas of psychology: personality, social, developmental, clinical, and comparative. It is as congenial to "negative psychology" (i.e., focusing on psychopathology and dysfunction) as it is to "positive psychology" (prosocial behavior, self-actualization). The theory was cognitive in certain respects from the start, but it has become more sophisticated cognitively as researchers have used methods ranging from discourse analysis (in the AAI) to social cognition constructs and research paradigms. Although we have not stressed its connections with learning or behaviorist approaches to personality development, the ways in which parental behavior influence the attachment patterns of infants could easily, and perhaps productively, be conceptualized in social learning theory terms, despite the historical antipathy between attachment and learning theorists.

Attachment theory explains how social "situations" (i.e., interactions with regular caregivers) build personality (i.e., attachment patterns), and how the resulting personality patterns then influence a person's choices among, and behavior in, social situations (especially close relationships). Most of the classic issues, debates, and conundrums in personality psychology have played themselves out within the field of attachment research, with largely productive results. We have not had space to say much about contemporary neuroscience methods, but there is already some interesting neuroscience research within the attachment domain (see, e.g., Coan, 2016; Gillath, Bunge, Shaver, Wendelken, & Mikulincer, 2005). Attachment theory and research provide a model of integration across what once were separate and ferociously defended fiefdoms within personality psychology. We look forward with great interest to the field's further development, diversification, and integration.

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