

SYSTEMS AND CONTEXTUAL VIEW OF ATHLETICS

The benefit from athletics, particularly for youth, is substantially a function of the quality of the interactions youth have with involved adults (e.g., parents, coaches, officials, and spectators) and the structure and philosophy of the community organizations overseeing sports programs.

Parents exert a powerful influence on youth sport experiences. They are usually the ones to initiate and encourage their children's participation in athletics and have a positive effect on experiences by reinforcing skill development, praising effort, modeling appropriate behavior, and focusing on their children's needs and expectations. Conversely, parents can undermine youth sport experiences by exerting pressure, by behaving inappropriately, and by using unkind words and actions.

Coaches also determine the quality of youths' athletic experiences. Despite their powerful socializing influence, little is known about coaches' characteristics. Most volunteer youth sport coaches are involved because their child is participating. They commonly have some athletic experience, but only about 10% are trained in coaching techniques. Experimental research has indicated that coaches can be trained to use specific techniques for encouraging their players, for helping their players to develop skills, and for avoiding punishment and negative interactions. Youth who play for trained coaches experience less anxiety, higher motivation, higher perceived competence, and greater enjoyment and are more likely to return to play the following year. Trained coaches also help build self-esteem, especially in those players who start the season with low self-esteem. Coaches who use positive praise and instruction frequently and liberally, and eliminate punishing tactics, are more likely to foster the positive psychosocial effects of athletics.

The operating structure and philosophy of the athletic organization are also critical influences. Some youth sports leagues have adopted a more "professional" philosophy that has contributed to a "win at all costs" mentality and to increased competitiveness, expectations, and pressure on youth. Additionally, many young athletes are exposed to values that tolerate disrespectful behavior and cheating. These factors contribute to high rates of negative experiences, "burnout," and dropout. Overall, evidence indicates that the benefits of athletics come not from simply

participating, but from participating in a program in which there are positive interactions with caring, supportive adults and in which the teaching of sport skills and healthy development are purposefully planned and structured.

—J. Douglas Coatsworth and David E. Conroy

Further Readings and References.

- American College of Sports Medicine, <http://www.acsm.org/>
 Coakley, J. (2004). *Sport in society: Issues and controversies*. New York: McGraw-Hill.
 Horn, T. (Ed.). (2002). *Advances in sport psychology* (2nd ed.). Champaign, IL: Human Kinetics.
 Institute for the Study of Youth Sports, Michigan State, <http://ed-web3.educ.msu.edu/ysi>
 Singer, R. N., Hausenblas, H. A., & Janelle, C. M. (2001). *Handbook of sport psychology* (2nd ed.). New York: Wiley.
 Weiss, M. R. (2004). *Developmental sport and exercise psychology: A lifespan approach*. Morgantown, WV: Fitness Information Technology.

ATTACHMENT

Very few topics in the field of human development have garnered as much attention as the nature and significance of the parent-child relationship. The theoretical approach to parent-child relationships that has generated the most extensive research, social policy changes, and controversy is attachment theory. At the core of attachment theory is the premise that early relationships are critical for a child's development. First articulated in the 1950s by London psychiatrist John Bowlby, the normative components of attachment theory integrate principles from fields as diverse as psychoanalysis, ethology, and cognitive science. Bowlby later incorporated into his theory a systematic conceptualization of individual differences in parent-child relationships, based on the pioneering work of his colleague Mary Ainsworth at Johns Hopkins University. Empirical research on attachment has since exploded and continues to be central to the study of socioemotional development across the life span.

HISTORICAL ROOTS OF ATTACHMENT THEORY

During his training as a psychiatrist in the 1930s and 1940s, Bowlby's interest in the importance of

early experiences with caregivers was sparked by a growing collection of clinical case studies, including his own observations of juvenile thieves. These reports revealed that some individuals who had experienced lengthy or repeated early separations from their parents were later observed to be superficially and indiscriminately friendly, emotionally flat, and aggressive; failed to form meaningful emotional connections to adults or peers; and often lied and stole. These retrospective findings complemented the results of prospective studies of children's behavior during separations from parents, documented most memorably in a series of films by Bowlby's collaborator James Robertson. These reports revealed that children older than 6 months who were separated from their parents progressed from an active phase of protest, during which they cried and called out hopefully for hours or days, to a passive phase of despair, during which they sobbed weakly and refused food and comfort. Some children then entered a phase of detachment, during which they became generally aggressive as well as superficially and indiscriminately friendly. Upon reunion with parents, even children returning to loving homes exhibited a period of unusual clinginess and hostility that lasted weeks or months; those who had become detached also temporarily failed to recognize the previously preferred parent. These findings on early separations were further complemented by studies of children reared in institutions without consistent caregivers. These children often suffered difficulties in forming selective emotional ties and, in some cases, also suffered other behavioral or psychological disturbances that persisted even after adoption.

Bowlby summarized this collection of findings in a report to the World Health Organization in 1951, concluding that stable early relationships with caregivers are as necessary to a child's mental health "as are vitamins and proteins for physical health." The evidence presented in this report initiated social policy changes that emerged over the subsequent decades. For example, parents began to be allowed to stay in the hospital with their ill children, prospective adoptive parents began to be encouraged to adopt children as early in life as possible, orphanages began to provide more personalized care for their children, an organized foster care system emerged, and parents lessened their casual temporary use of residential nurseries. In the wake of his report and the ensuing policy changes, Bowlby turned his attention to

explaining the phenomena he had documented, carefully examining existing theoretical views.

Psychoanalysis emphasized several issues relevant to the nature and significance of the early parent-child relationship. First, many psychoanalysts emphasized that psychological disturbances emanated not from real experiences but from unresolved fantasies related to parents. However, a group of psychoanalysts who came to be known as *object relations theorists* challenged this view, drawing on the findings discussed earlier. Despite this challenge, these clinicians nevertheless retained allegiance to psychoanalysis by explaining the influences of early experiences using other key aspects of the theory. They asserted that the ego—responsible for the development of emotions, intelligence, language, and the control of bodily functions—developed based on the mother satisfying as well as frustrating the infant's biological drives such as hunger. They asserted that the emotional ties that infants form to their mothers were, in fact, a secondary by-product to the reduction of the hunger drive. In addition, these psychoanalysts did not believe that children had the cognitive capacity to mourn. Thus, as long as an infant had caregivers who could satisfy and frustrate his or her biological drives through consistent personalized attention, these caregivers could be interchangeable.

Other contemporary views downplayed the importance of an emotional bond to a consistent caregiver altogether. The biological-maturational perspective, popular within the eugenics movement and among psychologists concerned with developmental milestones, viewed the child as a genetic entity unaffected by external forces. In fact, prominent representatives of this view discouraged early adoption on the grounds that adoptive parents who delayed choosing a child could better identify a child's defects and physical characteristics. Within the biological-maturational perspective, deleterious effects of separation and institutionalization were thought to be due to biological defects in the child.

Proponents of environmental learning views deemphasized the role of emotional bonds for quite different reasons. Early behaviorists viewed parental affection as dangerous to the development of a child's character because, for example, it reinforced bothersome behaviors such as crying. Consequently, these theorists advised parents not to hug or kiss a child, pick up a crying child, or feed on demand. In the wake of the findings on institutional care, later learning

theorists proposed that “maternal” deprivation was simply stimulus deprivation. Specifically, these researchers suggested that children separated from parents experienced psychological and behavioral problems not because they lacked emotional bonds but because they lacked an important source of perceptual input and reinforcement.

Bowlby concluded that none of these theories adequately explained the research findings on early separations and institutional care. Consequently, he devised a new theory of the parent-child relationship. First proposed in 1958 in an article titled “The Nature of the Child’s Tie to His Mother,” then expanded and refined in his trilogy *Attachment* (1969), *Separation* (1973), and *Loss* (1980), Bowlby’s theory integrated his training in psychoanalysis with evolutionary biology, ethology, control systems theory, and cognitive science. Bowlby proposed that specific emotional ties to parents are primary and based on survival—not secondary by-products of feeding or perceptual stimulation. Bowlby further proposed that caregivers are not interchangeable and that real experiences influence behavioral and psychological functioning throughout the life span. Over the past three decades, many researchers have contributed significant insights and nuance to Bowlby’s theory.

ETHOLOGICAL ATTACHMENT THEORY

The crux of attachment theory is that all infant ground-dwelling primates possess a biologically based attachment behavioral system that evolved through natural selection to promote survival. Unlike other animals who flee to a burrow or a den for protection, young primates are completely dependent on the care of older members of their species for protection from predation, starvation, freezing, and other dangers. By the time they are 6 to 9 months of age, almost all infants have formed enduring emotional ties, or “attachments,” with one or a few specific significant caregivers who serve these protective functions by virtue of their own caregiving behavioral system.

The attachment system functions to automatically motivate an infant to seek physical proximity to an attachment figure in times of threat—to use the attachment figure as a haven of safety. Threats that activate the attachment system may be internal, such as illness or fatigue, or external, such as darkness or an approaching animal. Many fears are thought to be based on the presence of one or more biologically

based natural clues to danger, such as being alone, strangeness, rapid approach, and sudden changes in stimulation. The activation of the attachment system is terminated either by the elimination of the threat or through proximity to the caregiver—achieved through social signals and behaviors as superficially diverse as crying, smiling, vocalizing, approaching, following, and clinging.

The attachment system works in conjunction with several other biologically based control systems. In times of threat, attachment is activated simultaneously with the fear system, which motivates the individual to flee from the source of alarm. Because the attachment and fear systems both function in the service of immediate survival, their activation typically takes priority over other behavioral systems in times of threat. However, in the absence of threat, activation of the attachment and fear systems is typically replaced by activation of the exploration and affiliation systems. Exploration and affiliation are crucial to long-term survival because they allow the infant to learn about and engage in the physical and social environments. Under these nonthreatening circumstances, the infant uses the attachment figure as a secure base for discovering the world—keeping the attachment figure nearby lest threat reemerge. Under optimal circumstances, an infant achieves balance between attachment/fear and exploration/affiliation—focused inflexibly neither on threat nor away from it.

Because protection offered by adults is indispensable for infant survival, almost all infants become attached to their primary caregiver—even when that caregiver is maltreating. The process of forming an attachment typically follows four general phases. Initially, infants nonpreferentially send out social signals such as crying and smiling that elicit care from different adults. Then, in the second or third month of life, infants begin to discriminate caregivers and to develop differential expectations related to the consistency, contingency, and appropriateness of care that they receive. Even in the earliest weeks of infancy, social stimuli are perceived as unique and significant, and it is toward these stimuli that infants direct their social signals. However, infants in these first two phases have not yet developed a well-formed concept of the parent as existing when out of sight and thus are not yet selectively attached. Consequently, infants who are separated from their primary caregivers during these phases do not mourn their loss and respond well to consistent substitute caregivers. Infants who

do not receive a substitute caregiver but rather are cared for in an impersonal group setting often fail to flourish; if these infants are not reunited with their caregivers or never receive a substitute caregiver, they will lack the opportunity to form attachments and may suffer some of the socioemotional or behavioral problems described previously.

Sometime between 6 and 9 months, infants begin to show the first signs of true attachments to those caregivers who have responded consistently and contingently (whether positively or negatively) to their social signals. Although infants often form more than one attachment, they typically prefer one figure to the others. At this time, infants begin to use their attachment figures as a secure base and a haven of safety. In addition, they begin to demonstrate stranger and separation anxiety and to protest separations for days or weeks after they have occurred. These emotional responses are conceptualized as biologically adaptive because they lead infants to engage in behaviors that increase their chances of survival. Specifically, haven-of-safety behaviors oriented toward an attachment figure provide immediate protection, whereas secure base behaviors, stranger anxiety, and separation anxiety function to keep the haven of safety accessible. Likewise, the phase of protest following separation is active and hopeful, involving a variety of social signals oriented toward alerting and drawing the absent caregiver.

Finally, as the infant becomes a young child, he or she becomes increasingly adept at integrating his or her own goals with those of attachment figures as well as negotiating with those figures—promoting the development of a “goal-corrected partnership.” It is this increasingly reciprocal form of attachment relationship that continues to be influential throughout the life span—with parents, very close peers, and significant romantic partners. Although needs for physical proximity are less acute than they were in infancy, cognitive advances allow children and adults to rely increasingly on psychological proximity to attachment figures and, provided that these caregivers have been sensitively responsive, to carry a sense of “felt” security. Whether in infancy or beyond, attachments are a special kind of bond that is based on protection and survival, are long lasting, and are characterized by high emotional involvement. Thus, all relationships cannot be considered true attachments. In addition, not all aspects of relationships are relevant to the attachment system—attachment refers specifically to

aspects related to fear, distress, protection, and comfort and not to aspects such as play, morality, discipline, achievement, or intellectual growth.

Throughout the life span, individuals are thought to form and maintain complementary mental representations of the self, others, and relationships. The content of these models reflects an individual’s expectations about how an attachment figure will respond when one is frightened, hurt, ill, or otherwise upset. These expectations are thought to develop largely based on a real history of interactions within those relationships. Although these relationship-specific “internal working models” do not capture every aspect of reality, they allow the individual to make predictions and plan actions within these relationships. Over time, these models are stable as well as dynamic. They resist change because they easily assimilate information that confirms expectations about the self and others. However, working models necessarily transform and update in response to changes in relationships and life circumstances (e.g., parental divorce or unemployment) as well as in response to cognitive and social developments (e.g., increasing capacity for abstract thought and a broadening social sphere). Over the life span, individuals gain an ever-increasing amount of information about different relationships across a variety of domains. The overarching attitude about attachment that emerges from the more specific working models has been termed *state of mind with respect to attachment*. It is these mental representations of relationships that serve as the basis for individual differences in attachment patterns.

INDIVIDUAL DIFFERENCES IN ATTACHMENT IN INFANCY AND CHILDHOOD

Attachment theory has perhaps been expanded most significantly by a systematic conceptualization of individual differences in attachment behaviors and representations, first identified in infants by Mary Ainsworth in the 1960s and later expanded and refined by other researchers. Between the ages of 12 and 18 months, these differential responses to stress are indexed behaviorally using the “strange situation,” a controlled laboratory procedure designed by Ainsworth. In this procedure, a parent and infant are twice separated and twice reunited in an unfamiliar toy-filled room. This procedure is meant to be just stressful enough to activate the child’s attachment system because of the presence of multiple natural clues

to danger (being alone, in a strange room, with a strange experimenter), but not so stressful that the child cannot employ a strategy to cope with the fear. Based on their behaviors within the strange situation, infants are assigned to one of four classifications; three groups were identified in Ainsworth's original work, whereas a fourth group was later added to the system based on work in Mary Main's laboratory at the University of California, Berkeley.

Infants are classified as "secure" when they balance their attention and behaviors between attachment (when stressed by the separations) and exploration (when physical or psychological proximity to the parent is achieved). Even if not visibly distressed, these infants show signs of missing the parent when separated, then are glad to see the parent upon reunion. Infants who are overtly distressed by the separations are calmed when reunited with the parent and are able to return to play. The secure pattern is associated with sensitive caregiving, such that the parent notices the infant's signals, interprets them correctly, and responds to them promptly and appropriately. In low-risk samples worldwide, about 60% of infants are classified as secure, with the remaining infants classified as one of three forms of insecure.

Infants are classified as "ambivalent-resistant" when they show extreme distress at the parent's departure, then are inconsolable and often angry upon reunion, unable to turn their attention away from the parent and back to exploration. Infants are classified as "avoidant" when they show little concern for the parent's departure then avoid the parent on reunion. Although infants displaying the avoidant pattern often appear to focus their attention on exploring the toys, their stress is belied by elevated heart rate and stress hormones as well as decreased quality of play. Ambivalent-resistant and avoidant patterns are associated with a variety of forms of insensitive caregiving, especially inconsistency (in the case of ambivalent-resistant infants) and rejection of infant bids for attachment (in the case of avoidant infants). Both patterns typically are conceptualized as insecure responses to threat and distress, in that they do not allow for the optimal balance of attachment and exploration. However, because these strategies are thought to develop based on insensitive parental care, they are conceptualized as organized and adaptive alternatives to the flexible secure strategy.

An organized behavioral strategy is not evident in a fourth group of infants. Instead, these infants show

any of a variety of unusual behaviors such as freezing in anomalous postures, rocking, and contradictory behavior patterns such as approaching the parent with head averted. These infants are classified as "disorganized-disoriented," and are thought to display a collapse in an otherwise organized behavioral strategy. Consequently, the disorganized classification is always assigned in conjunction with the best-fitting organized strategy (secure, avoidant, ambivalent-resistant)—the strategy thought to collapse. In contrast to the association of organized patterns of attachment with various degrees of parental sensitivity, disorganized infant behavior is predicted by caregiving that is either maltreating or subtly frightening (e.g., quasi-dissociative). Infants are thought to develop disorganized responses to such caregiving because they are placed in a behavioral paradox. When frightened, an infant seeks to flee from the source of threat and flee toward the attachment figure. When the attachment figure is the source of alarm, the infant cannot employ an organized strategy to cope with the fear.

The strange situation has been associated with a wide range of behavioral correlates in childhood and adolescence. Several longitudinal studies, including seminal work in the laboratories of Alan Sroufe and Byron Egeland at the University of Minnesota, have revealed that children and adolescents classified as secure with mother in infancy, compared with those classified as insecure, demonstrate higher levels of empathy, social competence, ego-resilience, self-reliance, internalization of moral standards, and leadership abilities; they also show lower levels of aggression, anxiety, anger, and dependence. Although children classified as insecure in infancy have shown difficulties in many of these areas overall, avoidance and disorganization have, in particular, been associated most strongly with aggression, whereas ambivalent-resistance has been associated most strongly with anxiety and dependence.

In addition to its behavioral and representational correlates, security has been associated with various manifestations of resilience and is considered a protective factor for development. In contrast, insecure attachment is considered a risk factor that, in concert with other factors, may contribute to the development of various forms of psychopathology. Among those later diagnosed with psychopathology, avoidant attachment in infancy, especially when it occurs in conjunction with disorganization, has been most strongly

associated with externalizing disorders such as conduct disorder, ambivalent-resistance with internalizing disorders such as anxiety, and disorganization with dissociative disorders.

The strange situation has served as a source of validation for other indexes of attachment quality, including the Attachment Q-Sort in infancy, as well as an assortment of assessment procedures for children in preschool and early elementary school. Behavioral assessments in childhood typically involve age-appropriate separation and reunion procedures, whereas representational assessments typically involve asking children to respond to hypothetical scenarios presented on picture cards, to engage in doll play, or to draw pictures of their families. However, the literature using these childhood procedures is small compared with literature grounded in the strange situation or the Adult Attachment Interview—the procedure that opened up the now-burgeoning field of adult attachment.

INDIVIDUAL DIFFERENCES IN ATTACHMENT IN ADULTHOOD

The assessment most commonly used by developmental and clinical researchers to assess attachment in adolescence and adulthood is the hour-long Berkeley Adult Attachment Interview (AAI), developed in the laboratory of Mary Main. The AAI involves describing and evaluating early attachment relationships, loss of attachment figures, and the possible relation between those experiences and later personality development. Unlike the strange situation, the AAI does not assess attachment quality in relation to a single other, but rather assesses an overarching state of mind that is applied to thinking about attachment-related events in the past and present. Furthermore, the AAI is not scored based on experiences explicitly described, but rather on the interview's internal consistency and the speaker's collaboration with the interviewer.

The AAI identifies three organized and adaptive patterns for thinking about threat and distress. Adults are classified as "secure-autonomous" in the AAI when they are able to reflect on positive and negative (even traumatic) memories in a manner that is not excessive in length yet is still complete, semantically consistent, flexible, thoughtful, and valuing of relationships. Individuals are classified as "dismissing" on the AAI when they provide terse discourse and unsupported statements about parents. These interviews often idealize rejecting parents, show an insistence on

lack of memory for childhood, distort rejection as a positive force, emphasize personal strength and independence, and devalue the need for relationships. Individuals are classified as "preoccupied" on the AAI when they provide long interviews full of irrelevant details, digressions, and current anger. Individuals are assigned to "cannot classify" when they exhibit high levels of more than one of these three linguistic strategies.

Adults are classified as unresolved-disorganized on the AAI when they show lapses in speech or reasoning during discussions of loss or trauma that are analogous to the lapses in behavior demonstrated by disorganized infants during the strange situation. Lapses in reasoning include, for example, speaking as though the dead person was simultaneously alive in the physical sense. Lapses in discourse include, for example, falling silent for many seconds then resuming discussion without acknowledging the silence. As in the case of behaviorally disorganized infants, unresolved status in adults is viewed as a collapse of an otherwise organized representational strategy and is always assigned in conjunction with the best-fitting organized category.

Samples worldwide have found AAI classifications to remain stable for up to 4 years and to be unrelated to intelligence, general memory capacities, general discourse patterns, or self-reports of attachment quality. Instead, the AAI consistently predicts the behavior of one's child in the strange situation—the purpose for which the interview was originally designed. Specifically, a parent's secure-autonomous classification in the AAI predicts infant security; a parent's dismissing classification predicts infant avoidance; a parent's preoccupied classification predicts infant ambivalent-resistance; and a parent's unresolved classification predicts infant disorganization. These predictions are thought to be mediated by parental behavior toward the infant across the previous year. In addition, in some middle-class samples, one's AAI classification can be predicted by one's strange situation classification nearly 20 years prior.

Furthermore, the AAI is associated with a variety of mental health variables. Individuals classified as secure-autonomous experience a lower incidence of mental illness overall. In contrast, among those diagnosed with mental illnesses, the dismissing classification has been most strongly associated with disorders involving aggression such as antisocial personality, whereas the preoccupied classification has been most strongly associated with disorders involving hypervigilance to threat

cues, such as anxiety and borderline personality. Among those diagnosed with mental disorders, the unresolved classification has been uniquely associated with dissociative disorders and also is more associated than other classifications with mental illness overall. "Cannot classify" has been found most commonly within samples involving abuse and criminal behavior. Although individuals diagnosed with mental illness typically have AAI transcripts classified as insecure, it is important to note that among individuals with transcripts classified as insecure, most are not diagnosed with mental illness.

DEBATES AND CURRENT TRENDS IN THE STUDY OF ATTACHMENT

Attachment theory and its methods for assessing individual differences have generated heated debates. For example, critics have directly questioned the validity of the Ainsworth strange situation as an index of the parent-child relationship. One branch of this debate suggests that the procedure is more stressful for some infants than others, based on their different kinds of experiences with separations. This debate grew out of early findings suggesting that infants in a Japanese sample were more likely to be judged ambivalent-resistant than infants in American samples, infants in a North German sample were more likely to be judged avoidant than infants in American samples, and infants in an American day care sample were more likely to be judged avoidant than infants in American home-reared samples. However, samples drawn from cultures as diverse as the United States, Germany, Japan, Israel, and West Africa have shown that there is more diversity in classifications within cultures than between cultures. Specifically, in middle-class samples worldwide, most infants are typically classified as secure, whereas in poverty and abuse samples worldwide, most infants are typically classified as insecure. The specific organized form of insecurity, not whether or not one is secure, is thought to be influenced by cultural practices related to separations and independence. Furthermore, an ongoing multisite American study has revealed that children in day care are as likely to be secure as their home-reared counterparts when that care is of high quality, and that maternal sensitivity in the home is the strongest predictor of their security.

A second branch of this debate suggests that strange situation classification is driven by temperament, not by a history of interactions with caregivers.

However, although biological temperament is manifest in the amount of distress experienced by an infant during the strange situation, this distress is unrelated to the child's response to reunion with the parent. In addition, an infant may demonstrate a different attachment pattern with each parent; an infant's pattern can be predicted before the child is even born based on the mother's AAI; a foster child's attachment pattern can be predicted by the AAI of a foster mother who is genetically unrelated; and a recent behavioral genetics study of 800 dyads has shown no connection between temperament and strange situation classification. Although temperament does not appear to have direct effects on strange situation classification itself, studies do indicate that it may influence the relationship indirectly when a difficult temperament in the infant is combined with a mother who has low social support and is thus unable to respond to the infant in a consistently sensitive manner.

In addition to critiques of attachment methods, many researchers and members of the general population have raised concerns about basic premises of attachment theory. Because the theory emphasizes the importance of early experiences with specific caregivers and warns of the dangers of separations, many people have been concerned that attachment theory chains women to their homes, blames parents for negative outcomes in their children, and is fatalistic in its emphasis on early development. However, these concerns are based on a misrepresentation of attachment theory. Because attachment security develops through interactions within relationships, primary caregivers need not be mothers, nor even biological parents. Furthermore, attachment theorists emphasize that one's representations of attachment are constantly updated and can—and should—change over time to adapt to new circumstances.

It is this aspect of attachment theory that represents one of the most exciting frontiers of current research in the field. For example, long-term longitudinal studies following individuals from infancy through young adulthood have begun to emerge, and results have begun to suggest that attachment patterns reflect both continuity and lawful discontinuity. Specifically, in some studies, individuals who were assessed as secure in both infancy and adulthood typically experienced ongoing supportive relationships with parents, those who were insecure at both points experienced ongoing unsupportive relationships, and those who moved from security to insecurity typically experienced intervening

losses and traumas. A related trend in attachment research is the investigation of individuals who begin life in insecure relationships and have harsh childhoods yet emerge as secure-autonomous adults—a phenomenon termed earned security. Potential contributors to earned secure status currently being investigated include supportive relationships outside the family, metacognitive abilities, and forgiveness.

Other current trends in the study of attachment include preventive and treatment interventions to foster security within dyads at risk for insecurity. In addition, clinicians have been using the AAI within a treatment context, for example, administering the AAI before and after treatment or administering adaptations of the interview that index state of mind with respect to the therapist-client relationship. Also at the frontier of attachment research are studies investigating biological processes, including the roles of stress hormones, brain structures, brain activation, and genes. Other studies are focusing on behavioral and representational correlates of the AAI, including its utility for predicting behavior in romantic relationships, responses to subliminally presented threat stimuli, and the processing of information related to threat and distress. Further research seeks to bridge the developmental literature on attachment with the self-report literature on “romantic attachment style” popular in social psychology. All of these studies will contribute to the growth of a theory that has remained strong for more than 50 years.

—Kirsten M. Blount-Matthews and
Matthew J. Hertenstein

See also Ainsworth, Mary Salter; Bowlby, John; Separation Anxiety; Strange Situation

Further Readings and References

- Ainsworth, M. D. S., Blehar, M., Waters, E., & Wall, S. (1978). *Patterns of attachment*. Hillsdale, NJ: Erlbaum.
- Attachment Theory and Research at Stony Brook, <http://www.johnbowlby.com>
- Belsky, J. (1999). Modern evolutionary theory and patterns of attachment. In J. Cassidy & P. Shaver (Eds.), *Handbook of attachment*. New York: Guilford.
- Bowlby, J. (1969). *Attachment and loss: Vol. I. Attachment*. New York: Basic Books.
- Hesse, E. (1999). The Adult Attachment Interview: Historical and current perspectives. In J. Cassidy & P. Shaver (Eds.), *Handbook of attachment*. New York: Guilford.
- Karen, R. (1994). *Becoming attached*. New York: Oxford University Press.

Lyons-Ruth, K., & Jacobvitz, D. (1999). Attachment disorganization: Unresolved loss, relationship violence, and lapses in behavioral and attentional strategies. In J. Cassidy & P. Shaver (Eds.), *Handbook of attachment*. New York: Guilford.

Main, M., Kaplan, N., & Cassidy, J. (1985). Security in infancy, childhood, and adulthood: A move to the level of representation. In I. Bretherton & E. Waters (Eds.), *Growing points of attachment theory and research. Monographs of the Society for Research in Child Development, 50*, 66–104.

Waters, E., Hamilton, C. E., & Weinfield, N. S. (2000). The stability of attachment security from infancy to adulthood: General introduction. *Child Development, 71*, 684–689.

Weinfield, N. S., Sroufe, L. A., Egeland, B., & Carlson, E. A. (1999). The nature of individual differences in infant-caregiver attachment. In J. Cassidy & P. Shaver (Eds.), *Handbook of attachment*. New York: Guilford.

Van IJzendoorn, M. H., & Sagi, A. (1999). Cross-cultural patterns of attachment: Universal and contextual dimensions. In J. Cassidy & P. Shaver (Eds.), *Handbook of attachment*. New York: Guilford.

ATTENTION

Attention is what helps us to maintain perception, thought, and behavior despite distraction. There are many varieties of attention, each with a different purpose and dependent on different brain mechanisms in order to function. Attention can be separated into three main categories: selection, vigilance, and control. There are many theories regarding the mechanisms of different types of attention.

We are exposed to more sensory stimulation at one time than we can process fully. Without attention, we would be unable to sift through it all to process what we must and disregard what is irrelevant. Different sensory impressions compete with each other for our attention. Selection is the mechanism by which the brain's resources are directed toward the processing of relevant information and away from irrelevant distracting information, and in this way, the competition between different sensory stimuli is resolved. There are two main types of selective attention: exogenous and endogenous attention.

Exogenous attention refers to attention that is reflexively drawn by the sensory events themselves. For instance, if you hear an unexpected noise or see a flash of light in the corner of your eye, that draws your attention to investigate what just happened. This form