Emotional and Social Development in Infancy and Toddlerhood

This mother and infant gaze at each other with mutual delight, suggesting that they have formed a deeply affectionate bond. The baby’s sense of trust in his caregivers is fundamental to all aspects of early development.
As Caitlin reached 8 months of age, her parents noticed that she had become more fearful. One evening, when Carolyn and David left her with a babysitter, she wailed when they headed for the door—an experience she had accepted easily a few weeks earlier. Caitlin and Timmy’s caregiver Ginette also observed an increasing wariness of strangers. A knock at the door from the mail carrier prompted them to cling to Ginette’s legs and reach out to be picked up.

At the same time, each baby seemed more willful. Removing an object from the hand produced little response at 5 months, but at 8 months Timmy resisted, then burst into angry screams when his mother, Vanessa, took away a table knife he had managed to reach.

Monica and Kevin knew little about Grace’s development during her first year, except that she had been deeply loved by her destitute, homeless mother. Separation from her had left Grace in shock. At first she was extremely sad, turning away when Monica or Kevin picked her up. She did not smile for over a week. But as Grace’s new parents held her close, spoke gently, and satisfied her craving for food, Grace returned their affection. Two weeks after her arrival, her despondency gave way to a sunny, easygoing disposition. As her second birthday approached, she pointed to herself, exclaiming “Gwace!” and laid claim to treasured possessions: “Gwace’s teddy bear!”

Taken together, Caitlin’s, Timmy’s, and Grace’s reactions reflect two related aspects of personality development during the first two years: close ties to others and a sense of self. We begin with Erikson’s psychosocial theory, which provides an overview of infant and toddler personality development. Then we chart the course of emotional development. As we do so, we will discover why fear and anger became more apparent in Caitlin’s and Timmy’s range of emotions by the end of the first year. Our attention then turns to the origins and developmental consequences of individual differences in temperament.

Next, we take up attachment to the caregiver, the child’s first affectionate tie. We will see how the feelings of security that grow out of this important bond provide support for the child’s sense of independence and expanding social relationships. Finally, we consider how cognitive advances combine with social experiences to foster early self-development and the beginnings of self-control in the second year.

**Erikson’s Theory of Infant and Toddler Personality**

Our discussion in Chapter 1 revealed that psychoanalytic theory is no longer in the mainstream of human development research. But one of its lasting contributions is its ability to capture the essence of personality during each period of development. Recall that Sigmund Freud, founder of the psychoanalytic movement, believed that psychological health and maladjustment could be traced to the early years—in particular, to the quality of the child’s relationships with parents. Although Freud came to be heavily criticized, the basic outlines of his theory were elaborated in several subsequent theories. The leader of these neo-Freudian perspectives is Erik Erikson’s psychosocial theory, first introduced in Chapter 1.

**Basic Trust versus Mistrust**

Erikson accepted Freud’s emphasis on the importance of the parent–infant relationship during feeding, but he expanded and enriched Freud’s view. A healthy outcome during infancy, Erikson believed, depends on the quality of caregiving: relieving discomfort promptly and sensitively, holding the infant gently, waiting patiently until the baby has had enough milk, and weaning when the infant shows less interest in breast or bottle.

Erikson recognized that many factors affect parental responsiveness—feelings of personal happiness, current life conditions...
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diversity, and disgust—are universal in humans and other primates

Basic emotions

Autonomy versus Shame and Doubt

With the transition to toddlerhood, Freud viewed the parents’ manner of toilet training as decisive for psychological health. In Erikson’s view, toilet training is only one of many influential experiences. The familiar refrains of newly walking, talking toddlers—“No!” “Do it myself!”—reveal a period of budding selfhood. They want to decide for themselves not just in toileting but also in other situations. The conflict of toddlerhood, autonomy versus shame and doubt, is resolved favorably when parents provide young children with suitable guidance and reasonable choices. A self-confident, secure 2-year-old has been encouraged not only to use the toilet but also to eat with a spoon and to help pick up his toys. And parents meet his assertions of independence with patience and understanding—for example, by giving him an extra five minutes to finish his play before leaving for the grocery store.

According to Erikson, the parent who is over- or under-controlling in toileting is likely to be so in other aspects of the toddler’s life as well. The outcome is a child who feels forced and shamed or who doubts his ability to control his impulses and act competently on his own.

In sum, basic trust and autonomy grow out of warm, sensitive parenting and reasonable expectations for impulse control starting in the second year. If children emerge from the first few years without sufficient trust in caregivers and without a healthy sense of individuality, the seeds are sown for adjustment problems.

Emotional Development

Researchers have conducted careful observations to find out how babies convey their emotions and interpret those of others. They have discovered that emotions play powerful roles in organizing the attainments that Erikson regarded as so important: social relationships, exploration of the environment, and discovery of the self (Halle, 2003; Saarni, Mumme, & Campos, 1998).

Development of Some Basic Emotions

Basic emotions—happiness, interest, surprise, fear, anger, sadness, and disgust—are universal in humans and other primates and can be directly inferred from similar facial expressions in diverse cultures (Ekman, 2003). Do newborns express basic emotions? Although signs of some emotions are present, babies’ earliest emotional life consists of little more than two global arousal states: attraction to pleasant stimulation and withdrawal from unpleasant stimulation. Only gradually do emotions become clear, well-organized signals (Camras et al., 2003; Fox, 1991).

According to one view, sensitive, contingent caregiver communication, in which parents selectively mirror aspects of the baby’s diffuse emotional behavior, helps infants construct discrete emotional expressions (Gergely & Watson, 1999). Around 6 months, face, voice, and posture form well-organized signals that vary meaningfully with environmental events. For example, Caitlin typically responded to her parents’ playful interaction with a joyful face, pleasant cooing, and a relaxed posture, as if to say, “This is fun!” In contrast, an unresponsive parent often evokes a sad face, fussy vocalizations, and a drooping body (sending the message, “I’m despondent”) or an angry face, crying, and “pick-me-up” gestures (as if to say, “Change this unpleasant event!”) (Weinberg & Tronick, 1994; Yale et al., 1999).

Four emotions—happiness, anger, sadness, and fear—have received the most research attention.

- **Happiness.** Happiness—first expressed in blissful smiles and later through exuberant laughter—contributes to many aspects of development. Infants smile and laugh when achieving new skills, displaying their delight in motor and cognitive mastery. As the smile encourages caregivers to be affectionate and stimulating, the baby smiles even more. Happiness binds parent and baby into a warm, supportive relationship that fosters the infant’s developing competencies.

  During the early weeks, newborn babies smile when full, during REM sleep, and in response to gentle stroking of the skin and the mother’s soft voice. By the end of the first month, infants smile at interesting sights that are dynamic and eye-catching, such as a bright object jumping suddenly across their field of vision. Between 6 and 10 weeks, the human face evokes a broad grin called the social smile (Sroufe & Waters, 1976). These changes in smiling parallel the development of infant perceptual capacities—in particular, babies’ sensitivity to visual patterns, including the human face (see Chapter 4).

  Laughter, which first occurs around 3 to 4 months, reflects faster processing of information than smiling. As with smiling, the first laughs occur in response to very active stimuli, such as the parent saying playfully, “I’m gonna get you!” and kissing the baby’s tummy. As infants understand more about their world, they laugh at events with subtler elements of surprise, such as a silent game of peekaboo (Sroufe & Wunsch, 1972). Around the middle of the first year, infants smile and laugh more when interacting with familiar people, a preference that strengthens the parent–child bond.

- **Anger and Sadness.** Newborn babies respond with generalized distress to a variety of unpleasant experiences, including hunger, painful medical procedures, changes in body temperature, and too much or too little stimulation. From 4 to 6 months
into the second year, angry expressions increase in frequency and intensity. Older infants react with anger in a wider range of situations—when an object is taken away, their arms are restrained, the caregiver leaves for a brief time, or they are put down for a nap (Camras et al., 1992; Stenberg & Campos, 1990; Sullivan & Lewis, 2003).

Cognitive and motor development underlie this increase in angry reactions. As infants become capable of intentional behavior (see Chapter 5), they want to control their own actions (Alessandri, Sullivan, & Lewis, 1990). Older infants are also better at identifying who caused them pain or removed a toy. The rise in anger is also adaptive. New motor capacities enable an angry infant to defend herself or overcome an obstacle (Izard & Ackerman, 2000).

Although expressions of sadness also occur in response to pain, removal of an object, and brief separations, they are less frequent than anger (Alessandri, Sullivan, & Lewis, 1990; Izard, Hembree, & Huebner, 1987). But when caregiver–infant communication is seriously disrupted, infant sadness is common—a condition that impairs all aspects of development (see the Lifespan Vista box).

**Fear.** Like anger, fear rises during the second half of the first year. Older infants often hesitate before playing with a new toy, and newly crawling infants soon show fear of heights (see Chapter 4). But the most frequent expression of fear is to unfamiliar adults, a response called **stranger anxiety.** Many infants and toddlers are quite wary of strangers, although the reaction varies with the infant’s temperament (some babies are generally more fearful), past experiences with strangers, and the current situation (Thompson & Limber, 1991). When an unfamiliar adult picks up the infant in a new setting, stranger anxiety is likely. But if the adult sits still or acts warmly and playfully and a parent is nearby, infants often show positive and curious behavior (Horner, 1980).

Infant-rearing practices can modify stranger anxiety, as cross-cultural research reveals. Among the Efe hunters and gatherers of Congo, West Africa, where the maternal death rate is high, infant survival is safeguarded by a collective caregiving system in which, starting at birth, Efe babies are passed from one adult to another. Consequently, Efe infants show little stranger anxiety (Tronick, Morelli, & Ivey, 1992). The overall rise in fear after 6 months keeps newly mobile babies’ enthusiasm for exploration in check. Once wariness develops, babies use the familiar caregiver as a **secure base,** or point from which to explore, venturing into the environment and then returning for emotional support. As part of this adaptive system, encounters with strangers lead to two conflicting tendencies: approach (indicated by interest and friendliness) and avoidance (indicated by fear). The infant’s behavior is a balance between the two.

Eventually, as toddlers discriminate more effectively between threatening and nonthreatening people and situations, stranger anxiety and other fears of the first two years decline. Fear also wanes as toddlers acquire better strategies for coping with it, as you will see when we discuss emotional self-regulation.

### Understanding and Responding to the Emotions of Others

Infants’ emotional expressions are closely tied to their ability to interpret the emotional cues of others. Early on, infants detect others’ emotions through a fairly automatic process of **emotional contagion,** just as we tend to feel happy or sad when we sense these emotions in others. Around 4 months, infants become sensitive to the structure and timing of face-to-face interactions. When they gaze, smile, or vocalize, they expect their social partner to respond in kind (Rochat, Striano, & Blatt, 2002). Within these exchanges, babies become increasingly aware of the range of emotional expressions (Montague & Walker-Andrews, 2001).

Around 5 months, infants perceive facial expressions as organized, meaningful patterns and can match the emotion in a voice with the appropriate face of a speaking person (see Chapter 4). As skill at grasping others’ intentions and establishing joint attention improves, infants realize that an emotional expression not only has meaning but also is a meaningful reaction to a specific object or event (Moses et al., 2001; Tomasello, 1999).

Once these understandings are in place, infants engage in **social referencing,** in which they actively seek emotional information from a trusted person in an uncertain situation. Many
A Lifespan Vista

Parental Depression and Children’s Development

Approximately 8 to 10 percent of women experience chronic depression—mild to severe feelings of sadness and withdrawal that continue for months or years. Sometimes, depression emerges or strengthens after childbirth and fails to subside. Julia experienced this type—called postpartum depression.

Although less recognized and studied, about 4 percent of fathers also report depression after the birth of a child (Deater-Deckard et al., 1998). Either maternal or paternal depression can interfere with effective parenting and seriously impair children’s development. Although genetic makeup increases the risk of depressive illness, social and cultural factors are also involved.

Maternal Depression. During Julia’s pregnancy, her husband Kyle showed so little interest in the baby that Julia worried that having a child might be a mistake. Shortly after Lucy was born, Julia’s mood plunged. She became anxious and weepy, overwhelmed by Lucy’s needs, and angry that she no longer had control over her own schedule. When Julia approached Kyle about her fatigue and his unwillingness to help with the baby, he snapped that she overreacted to every move he made. Julia’s depressed mood quickly affected her baby. The more extreme the depression and the greater the number of stressors in a mother’s life (such as marital discord, little or no social support, and poverty), the more the parent–child relationship suffers (Simpson et al., 2003). Julia, for example, rarely smiled at, comforted, or talked to Lucy, who responded to her mother’s sad, vacant gaze by turning away, crying, sleeping poorly, and often looking sad or angry herself (Herrera, Reissland, & Shepherd, 2004; Stanley, Murray, & Stein, 2004). By age 6 months, Lucy showed symptoms common in babies of depressed mothers—delays in development, an irritable mood, and attachment difficulties (Martins & Gaffan, 2000).

At older ages, depressed mothers use inconsistent discipline—sometimes lax, at other times too forceful. Children who experience these mal-adaptive parenting practices often have serious adjustment problems. Some withdraw into a depressive mood themselves; others become impulsive and aggressive (Hay et al., 2003).

Paternal Depression. In a study of a large representative sample of British parents and babies, researchers assessed depressive symptoms in both mothers and fathers shortly after birth and again the following year. Then they tracked the development of their children into the preschool years. Like findings on children of depressed mothers, paternal depression was strongly associated with children’s behavior problems—especially overactivity, defiance, and aggression in boys (Ramchandani et al., 2005).

During childhood, paternal depression is linked to frequent father–child conflict (Kane & Garber, 2004). Over time, children subjected to parental negativity develop a pessimistic worldview—one in which they lack self-confidence and perceive their parents and other people as threatening. Children who constantly feel in danger are likely to become overly aroused in stressful situations, easily losing control in the face of cognitive and social challenges (Cummings & Davies, 1994).

Interventions. Early treatment of parental depression is vital to prevent the disorder from interfering with the parent–child relationship. Julia’s doctor referred her to a counselor, who helped Julia and Kyle with their marital problems and encouraged them to interact more sensitively with Lucy—therapy that reduces young children’s attachment and developmental problems (Van Doesum, Hosman, & Riksen-Walraven, 2005). At times, antidepressant medication is prescribed. In most cases of postpartum depression, mothers bounce back after short-term treatment (Steinberg & Bellavance, 1999). When a parent does not respond easily to treatment, a warm relationship with the other parent or another caregiver can safeguard children’s development (Mezulis, Hyde, & Clark, 2004).
studies show that the caregiver’s emotional expression (happy, angry, or fearful) influences whether a 1-year-old will be wary of strangers, play with an unfamiliar toy, or cross the deep side of the visual cliff (Repacholi, 1998; Stenberg, 2003; Striano & Rochat, 2000).

Parents can capitalize on social referencing to teach their youngster how to react to many everyday events. And social referencing lets toddlers compare their own assessments of events with those of others. Around the middle of the second year, they appreciate that others’ emotional reactions may differ from their own. In one study, an adult showed 14- and 18-month-olds broccoli and crackers and acted delighted with one food but disgusted with the other. When asked to share the food, 18-month-olds gave the adult whichever food she appeared to like, regardless of their own preferences (Repacholi & Gopnik, 1997).

In sum, social referencing helps young children move beyond simply reacting to others’ emotional messages. They use those signals to guide their own actions and to find out about others’ internal states and preferences.

**Emergence of Self-Conscious Emotions**

Besides basic emotions, humans are capable of a second, higher-order set of feelings, including guilt, shame, embarrassment, envy, and pride. These are called **self-conscious emotions** because each involves injury to or enhancement of our sense of self. We feel guilt when we have harmed someone and want to correct the wrongdoing. When we are ashamed or embarrassed, our negative feelings about our behavior make us want to retreat so others will no longer notice our failings. In contrast, pride reflects delight in the self’s achievements, and we are inclined to tell others what we have accomplished (Saarni, Mumme, & Campos, 1998).

Self-conscious emotions appear in the second half of the second year, as 18- to 24-month-olds become firmly aware of the self as a separate, unique individual. Toddlers show shame and embarrassment by lowering their eyes, hanging their heads, and hiding their faces with their hands. They show guilt-like reactions, too: One 22-month-old returned a toy she had grabbed, then patted her upset playmate. Pride also emerges around this time, and envy by age 3 (Barrett, 1998; Garner, 2003; Lewis et al., 1989).

Besides self-awareness, self-conscious emotions require an additional ingredient: adult instruction in when to feel proud, ashamed, or guilty. Situations in which adults encourage these feelings vary from culture to culture. In most of the United States, children are taught to feel pride about personal achievement. But in collectivist cultures, such as China and Japan, calling attention to purely personal success evokes embarrassment and self-effacement. And violating cultural standards by failing to show concern for others—a parent, a teacher, or an employer—sparks intense shame (Akimoto & Sanbonmatsu, 1999; Lewis, 1992).

**Beginnings of Emotional Self-Regulation**

Besides expressing a wider range of emotions, infants and toddlers begin to manage their emotional experiences. **Emotional self-regulation** refers to the strategies we use to adjust our emotional state to a comfortable level of intensity so we can accomplish our goals (Eisenberg & Spinrad, 2004). When you remind yourself that an anxiety-provoking event will be over soon, suppress your anger at a friend’s behavior, or decide not to see a scary horror film, you are engaging in emotional self-regulation.

Emotional self-regulation requires voluntary, effortful management of emotions, a capacity that improves gradually, as a result of development of the cerebral cortex and the assistance of caregivers, who help children manage intense emotion and teach them strategies for doing so (Eisenberg & Morris, 2002; Fox & Calkins, 2003). A good start in regulating emotion during the first two years contributes greatly to autonomy and mastery of cognitive and social skills (Crockenberg & Leerkes, 2000).

In the early months of life, infants are easily overwhelmed by intense emotion. They depend on the soothing interventions of caregivers—lifting the distressed baby to the shoulder, rocking, and talking softly. Rapid development of the frontal lobes of the cerebral cortex increases the baby’s tolerance for stimulation. Between 2 and 4 months, caregivers build on this capacity by initiating face-to-face play and attention to objects. In these interactions, parents arouse pleasure in the baby while adjusting the pace of their behavior so the infant does not become distressed. As a result, the baby’s tolerance for stimulation increases further (Kopp & Neufeld, 2003). By 4 months, the ability to shift
attention away from unpleasant events helps infants control emotion (Axia, Bonichini, & Benini, 1999). At the end of the first year, crawling and walking enable infants to regulate feelings by approaching or retreating from various situations.

Infants whose parents “read” and respond sympathetically to their emotional cues tend to be less fussy, more easily soothed, and more interested in exploration. In contrast, parents who wait to intervene until the infant has become extremely agitated reinforce the baby’s rapid rise to intense distress. When caregivers do not regulate stressful experiences for babies, brain structures that buffer stress may fail to develop properly, resulting in an anxious, reactive child with a reduced capacity for regulating emotion (Crockenberg & Leerkes, 2000; Nelson & Bosquet, 2000).

Caregivers also provide lessons in socially approved ways of expressing feelings. Collectivist cultures place particular emphasis on socially appropriate emotional behavior. Compared with North Americans, Japanese and Chinese adults discourage babies from expressing strong emotion (Fogel, 1993; Kuchner, 1989). By the end of the first year, Chinese and Japanese infants smile and cry less than American infants (Camras et al., 1998).

Toward the end of the second year, a vocabulary for talking about feelings—“happy,” “scary,” “yucky,” and “mad”—develops rapidly (Bretherton et al., 1986). Once they can describe their internal states, toddlers can guide caregivers to help them. For example, while listening to a story about monsters, Grace whimpered, “Mommy, scary.” Monica put the book down and gave Grace a comforting hug.

The Structure of Temperament

Thomas and Chess’s nine dimensions, listed in Table 6.1 on page 146, served as the first influential model of temperament. When detailed descriptions of infants’ and children’s behavior obtained from parent interviews were rated on these dimensions, certain characteristics clustered together, yielding three types of children:

- **The easy child** (40 percent of the sample) quickly establishes regular routines in infancy, is generally cheerful, and adapts easily to new experiences.
- **The difficult child** (10 percent of the sample) is irregular in daily routines, is slow to accept new experiences, and tends to react negatively and intensely.
- **The slow-to-warm-up child** (15 percent of the sample) is inactive, shows mild, low-key reactions to environmental stimuli, is negative in mood, and adjusts slowly to new experiences.

Note that 35 percent of the children did not fit any of these categories. Instead, they showed unique blends of temperamental characteristics.

Difficult children are at high risk for adjustment problems—both anxious withdrawal and aggressive behavior in early and middle childhood (Bates, Wachs, & Emde, 1994; Ramos et al., 2005; Thomas, Chess, & Birch, 1968). Compared with difficult children, slow-to-warm-up children present fewer problems in the early years. However, they tend to show excessive fearfulness and slow, constricted behavior in the late preschool and school years, when they are expected to respond actively and quickly in classrooms and peer groups (Chess & Thomas, 1984; Schmitz et al., 1999).

Table 6.1 on page 146 also shows a second model of temperament, devised by Mary Rothbart, that is more concise than that of Thomas and Chess (Rothbart, Ahadi, & Evans, 2000; Rothbart & Mauro, 1990). Furthermore, according to Rothbart, individuals

**Temperament and Development**

When we describe one person as cheerful and “upbeat,” another as active and energetic, and still another as calm, cautious, or prone to angry outbursts, we are referring to temperament—early-appearing, stable individual differences in reactivity and self-regulation. **Reactivity** refers to quickness and intensity of emotional arousal, attention, and motor activity. **Self-regulation**, as we have seen, refers to strategies that modify that reactivity (Rothbart, 2004; Rothbart & Bates, 1998). The psychological traits that make up temperament are believed to form the cornerstone of the adult personality.

In 1956, Alexander Thomas and Stella Chess initiated the New York Longitudinal Study, a groundbreaking investigation of the development of temperament that followed 141 children from early infancy well into adulthood. Results showed that temperament can increase a child’s chances of experiencing psychological problems or, alternatively, protect a child from the negative effects of a highly stressful home life. At the same time, Thomas and Chess (1977) discovered that parenting practices can modify children’s temperaments considerably.

These findings stimulated a growing body of research on temperament. Let’s begin with the structure, or makeup, of temperament and how it is measured.

**Ask Yourself**

**Review**
Why do many infants show stranger anxiety in the second half of the first year? What factors can increase or decrease wariness of strangers?

**Apply**
At age 14 months, Reggie built a block tower and gleefully knocked it down. But at age 2, he called to his mother and pointed proudly at his tall block tower. What explains this change in Reggie’s emotional behavior?

**Reflect**
Describe several recent events in your own life that required you to manage negative emotion. How did you react in each case? How might your early experiences and cultural background have influenced your style of emotional self-regulation?

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differ not just in their reactivity on each dimension, but also in the self-regulatory dimension of temperament, *effortful control*—the capacity to voluntarily suppress a dominant response in order to plan and execute a more adaptive response (Rothbart, 2003; Rothbart & Bates, 1998). Variations in effortful control are evident in how effectively a child can focus and shift attention, inhibit impulses, and manage negative emotion.

**Measuring Temperament**

Temperament is often assessed through interviews or questionnaires given to parents. Behavior ratings by pediatricians, teachers, and others familiar with the child and laboratory observations by researchers have also been used. Parental reports are convenient and take advantage of parents' depth of knowledge about the child (Gartstein & Rothbart, 2003). Although information from parents has been criticized as biased, parental reports are moderately related to researchers' observations of children's behavior (Mangelsdorf, Schoppe, & Buur, 2000). Observations by researchers in the home or laboratory avoid the subjectivity of parental reports, but they can lead to other inaccuracies. In homes, observers find it hard to capture rare but important events, such as infants' response to frustration. And in an unfamiliar lab, fearful children who calmly avoid certain experiences at home may become too upset to complete the session (Wachs & Bates, 2001). Still, researchers can better control children's experiences in the lab. And they can combine observations of behavior with physiological measures to gain insight into the biological bases of temperament.

Most physiological research has focused on children who fall at opposite extremes of the positive-affect and fearful-distress dimensions of temperament (refer again to Table 6.1): **inhibited**, or shy, children, who react negatively to and withdraw from novel stimuli, and **uninhibited**, or sociable, children, who display positive emotion to and approach novel stimuli. As the Biology and Environment box reveals, biologically based reactivity differentiates inhibited and uninhibited children. Nevertheless, parenting practices are crucial in whether an inhibited style is sustained over time.

**Stability of Temperament**

Many studies indicate that young children who score low or high on dimensions of temperament tend to respond similarly when assessed again several months to a few years later and, occasionally, even into the adult years (Caspi et al., 2003; Kochanska & Knaack, 2003; Rothbart, Ahadi, & Evans, 2000). However, the stability of temperament is low to moderate (Putnam, Samson, & Rothbart, 2000).
Development of Shyness and Sociability

Two 4-month-old babies, Larry and Mitch, visited the laboratory of Jerome Kagan, who observed their reactions to various unfamiliar experiences. When exposed to new sights and sounds, such as a moving mobile decorated with colorful toys, Larry moved his arms and legs with agitation and cried. In contrast, Mitch remained relaxed and quiet, smiling and cooing.

As toddlers, Larry and Mitch returned to the laboratory, where they experienced procedures designed to induce uncertainty. Electrodes were placed on their bodies and blood pressure cuffs on their arms to measure heart rate; toy robots, animals, and puppets moved before their eyes; and unfamiliar people behaved in unexpected ways or wore novel costumes. While Larry whimpered and quickly withdrew, Mitch watched with interest, laughed, and approached the toys and strangers.

On a third visit, at age 4½, Larry barely talked or smiled during an interview with an unfamiliar adult. In contrast, Mitch expressed pleasure at each new activity. In a playroom with two unfamiliar peers, Larry pulled back and watched, while Mitch made friends quickly.

In longitudinal research on several hundred Caucasian children, Kagan (1998) found that about 20 percent of 4-month-old babies were, like Larry, easily upset by novelty; 40 percent, like Mitch, were comfortable, even delighted, with new experiences. About 20 to 30 percent of these groups retained their temperamental styles as they grew older (Kagan, 2003; Kagan & Saudino, 2001). But most children’s dispositions became less extreme over time. Biological makeup and child-rearing experiences jointly influenced stability and change in temperament.

Physiological Correlates of Shyness and Sociability. Individual differences in arousal of the amygdala, an inner brain structure that controls avoidance reactions, contribute to these contrasting temperaments. fMRI research reveals that in shy, inhibited children, novel stimuli easily excite the amygdala and its connections to the cerebral cortex and the sympathetic nervous system, which prepares the body to act in the face of threat. In sociable, uninhibited children, the same level of stimulation evokes minimal neural excitation (Schwartz et al., 2003). And the two emotional styles are distinguished by additional physiological responses that are mediated by the amygdala:

- **Heart rate.** From the first few weeks of life, the heart rates of shy children are consistently higher than those of sociable youngsters (Snidman et al., 1995).

- **Cortisol.** Saliva concentration of the stress hormone cortisol tends to be higher in shy than in sociable children (Gunnar & Nelson, 1994).

- **Pupil dilation, blood pressure, and skin surface temperature.** Compared with sociable children, shy children show greater pupil dilation, rise in blood pressure, and cooling of the fingertips when faced with novelty (Kagan et al., 1999).

- **EEG brain-wave activity in the cerebral cortex.** Inhibited children also show greater generalized activation of the cerebral cortex, an indicator of high emotional arousal and monitoring of new situations for potential threats (Henderson et al., 2004).

Child-Rearing Practices. According to Kagan (1998), extremely shy or sociable children inherit a physiology that biases them toward a particular temperamental style. Yet experience, too, has a powerful impact.

Warm, supportive parenting reduces shy infants’ and preschoolers’ intense physiological reaction to novelty, whereas cold, intrusive parenting heightens anxiety (Rubin, Burgess, & Hastings, 2002). And if parents protect infants who dislike novelty from minor stresses, they make it harder for the child to overcome an urge to retreat. Parents who make appropriate demands for their baby to approach new experiences help the child overcome fear (Rubin et al., 1997).

When inhibition persists, it leads to excessive cautiousness, low self-esteem, and loneliness and, in adolescence, increases the risk of severe anxiety, especially social phobia—intense fear of being humiliated in social situations (Prior et al., 2000). For inhibited children to acquire effective social skills, parenting must be tailored to their temperaments—a theme we will encounter again in this and later chapters.

A strong physiological response to uncertain situations prompts this child to cling to her father. With patient but insistent encouragement, he can modify her reactivity and help her overcome her urge to retreat from unfamiliar events.
A major reason is that temperament itself develops with age. To illustrate, let’s look at irritability. Recall from Chapter 3 that the early months are a period of fussing and crying for most babies. As infants can better regulate their attention and emotions, many who initially seemed irritable become calm and content. Furthermore, toddlers with irritable temperaments who experience patient, supportive parenting are better at managing their reactivity (Warren & Simmens, 2005). They are especially likely to decline in difficultness during the preschool years—findings demonstrating that child rearing plays an important role in modifying biologically based temperamental traits.

These findings help us understand why long-term predictions from early temperament are most accurately made after age 2, when styles of responding are better established (Caspì, 1998; Lemery et al., 1999). And the low to moderate stability of temperament makes sense when we consider that many factors affect the persistence of a temperamental style, including development of the biological systems on which temperament is based, the child’s capacity for effortful control, and rearing experiences. With these ideas in mind, let’s turn to genetic and environmental contributions to temperament and personality.

Genetic Influences

Research indicates that identical twins are more similar than fraternal twins across a wide range of temperamental and personality traits (Caspì, 1998; DiLalla, Kagan, & Reznick, 1994; Emde et al., 1992; Goldsmith et al., 1999; Saudino & Cherny, 2001). In Chapter 2, we noted that heritability estimates suggest a moderate role for heredity in personality: On average, half of individual differences have been attributed to differences in genetic makeup.

Consistent ethnic and sex differences in early temperament exist, again implying a role for heredity. Compared with North American Caucasian infants, Japanese and Chinese babies tend to be less active, irritable, and vocal, more easily soothed when upset, and better at quieting themselves (Kagan et al., 1994; Lewis, Ramsay, & Kawakami, 1993). From an early age, boys tend to be more active and daring and girls more anxious and timid—a difference reflected in boys’ higher injury rates throughout childhood and adolescence.

Environmental Influences

Environment also has a powerful influence on temperament. For example, we have seen in earlier chapters that persistent nutritional and emotional deprivation profoundly alters temperament, resulting in maladaptive emotional reactivity. Other research shows that heredity and environment often combine to influence temperament, since a child’s approach to the world affects the experiences to which she is exposed. To see how this works, let’s take a second look at ethnic and sex differences in temperament.

Japanese mothers usually say that babies come into the world as independent beings who must learn to rely on their mothers through close physical contact. North American mothers typically believe just the opposite—that they must wean babies away from dependence toward autonomy (Kojima, 1986). Consistent with these beliefs, Asian mothers interact gently and soothingly, relying heavily on gestures and (as we saw earlier) discouraging strong emotion in their babies, whereas Caucasian mothers use a more active, stimulating, verbal approach (Rothbaum et al., 2000a). These differences enhance early ethnic differences in temperament.

A similar process seems to contribute to sex differences in temperament. Within 24 hours after birth (before they have had much experience with the baby), parents rate sons as larger, better coordinated, more alert, and stronger, daughters as softer, weaker, and more delicate and awkward (Stern & Karraker, 1989; Vogel et al., 1991). These gender-stereotyped beliefs influence parents’ treatment of infants and toddlers. Parents more often encourage their young sons to be physically active and their daughters to seek help and physical closeness (Ruble & Martin, 1998).

In families with several children, an additional influence is at work: Listen to the comments parents make, and you will see that they often look for personality differences in their children: “She’s a lot more active,” “He’s more sociable,” “She’s far more persistent.” As a result, parents often regard siblings (including identical twins) as more distinct than other observers do (Saudino, 2003). Parents’ tendency to emphasize each child’s unique qualities affects their child-rearing practices. In an investigation of identical-twin toddlers, mothers treated each twin differently. The twin who received more warmth and less harshness was more positive in mood and social behavior (Deater-Deckard et al., 2001).

Besides different experiences within the family, siblings have distinct experiences with teachers, peers, and others in their community that affect development. And in middle childhood and adolescence, they often seek ways to differ from one another. In adulthood, both identical and fraternal twins tend to become increasingly dissimilar (Loehlin & Martin, 2001; McCartney, Harris, & Bernieri, 1990). In sum, temperament and personality can be understood only in terms of complex interdependencies between genetic and environmental factors.

Temperament and Child Rearing: The Goodness-of-Fit Model

As we have seen, the temperaments of many children change with age. This suggests that if a child’s disposition interferes with learning or getting along with others, adults can counteract the child’s maladaptive behavior. Thomas and Chess (1977) proposed a goodness-of-fit model to describe how temperament and environment can together produce favorable outcomes. Goodness of fit involves creating child-rearing environments that recognize each child’s temperament while encouraging more adaptive functioning.

Difficult children frequently experience parenting that fits poorly with their dispositions. By the second year, their parents often resort to angry, punitive discipline, which undermines
“Goodness-of-fit” describes the interaction between a child’s biologically based temperament and the child-rearing environment. This mother’s calm, soothing response to her baby’s fussiness will help the child regulate intense emotion and develop more adaptive responses to frustration.

As the child reacts with defiance and disobedience, parents become increasingly stressed (Coplan, Bowker, & Cooper, 2002). As a result, they continue their coercive tactics and also discipline inconsistently, at times rewarding the child’s noncompliance by giving in to it—practices that sustain the child’s irritable, conflict-ridden style (Calkins, 2002).

Good parenting, however, depends on life conditions. In a comparison of Russian and U.S. babies, Russian infants were more emotionally negative, fearful, and upset when frustrated (Garstein, Slobodskaya, & Kinsht, 2003). Faced with a depressed national economy, which resulted in financial worries and longer work hours, Russian parents may have lacked time and energy for the patient parenting that protects against difficultness.

An effective match between rearing conditions and child temperament is best accomplished early, before unfavorable temperament–environment relationships produce maladjustment. Both difficult and shy children benefit from warm, accepting parenting that makes firm but reasonable demands for mastering new experiences. With reserved, inactive toddlers, highly stimulating parental behavior—encouraging, questioning, and pointing out objects—fosters exploration.

Yet for highly active babies, these same parental behaviors are too directive, dampening their play and curiosity (Gandour, 1989; Miceli et al., 1998). The goodness-of-fit model reminds us that infants have unique dispositions that adults must accept. But parents can transform an environment that exaggerates a child’s problems into one that builds on the child’s strengths. As we will see, goodness of fit is also at the heart of infant–caregiver attachment. This first intimate relationship grows out of interaction between parent and baby, to which the emotional styles of both partners contribute.

**Ask Yourself**

**Review**

How do genetic and environmental factors work together to influence temperament? Cite several examples from research.

**Apply**

At 18 months, highly active Jake climbed out of his highchair and had a tantrum when his father insisted that he sit at the table until the meal was finished. Using the concept of goodness of fit, suggest another way of handling Jake.

**Reflect**

How would you describe your temperament as a young child? Do you think your temperament has remained stable, or has it changed? What factors might be involved?

**Development of Attachment**

**Attachment** is the strong affectionate tie we have with special people in our lives that leads us to feel pleasure when we interact with them and to be comforted by their nearness in times of stress. By the second half of the first year, infants have become attached to familiar people who have responded to their needs, and they single out their parents for special attention. When the mother enters the room, the baby breaks into a broad, friendly smile. When she picks him up, he pats her face, explores her hair, and snuggles against her. When he feels anxious or afraid, he crawls into her lap and clings closely.

Attachment has also been the subject of intense theoretical debate. Turn back to the description of Erikson’s theory at the beginning of this chapter, and notice how the psychoanalytic perspective regards feeding as the primary context in which caregivers and babies build this emotional bond. Behaviorism, too, emphasizes the importance of feeding, but for different reasons. According to a well-known behaviorist account, as the mother satisfies the baby’s hunger, infants learn to prefer her soft caresses, warm smiles, and tender words of comfort because these events have been paired with tension relief.
Although feeding is an important context for building a close relationship, attachment does not depend on hunger satisfaction. In the 1950s, a famous experiment showed that rhesus monkeys reared with terrycloth and wire-mesh “surrogate mothers” clung to the soft terrycloth substitute, even though the wire-mesh “mother” held the bottle and infants had to climb on it to be fed (Harlow & Zimmerman, 1959). Similarly, human infants become attached to family members who seldom feed them, including fathers, siblings, and grandparents. And toddlers in Western cultures who sleep alone and experience frequent daytime separations from their parents sometimes develop strong emotional ties to cuddly objects, such as blankets and teddy bears, that have never played a role in infant feeding!

Ethological Theory of Attachment

Today, ethological theory of attachment, which recognizes the infant’s emotional tie to the caregiver as an evolved response that promotes survival, is the most widely accepted view. John Bowlby (1969), who first applied this idea to the infant-caregiver bond, was inspired by Konrad Lorenz’s studies of imprinting in baby geese (see Chapter 1). Bowlby believed that the human infant, like the young of other animal species, is endowed with a set of built-in behaviors that help keep the parent nearby to protect the infant from danger and to provide support for exploring and mastering the environment (Waters & Cummings, 2000).

The infant’s relationship with the parent begins as a set of innate signals that call the adult to the baby’s side. Over time, a true affectionate bond develops, supported by new cognitive and emotional capacities as well as by a history of warm, sensitive care. Attachment develops in four phases:

1. Preadaptation phase (birth to 6 weeks). Built-in signals—grasping, smiling, crying, and gazing into the adult’s eyes—help bring newborn babies into close contact with other humans, who comfort them.

2. “Attachment-in-the-making” phase (6 weeks to 6–8 months). During this phase, infants respond differently to a familiar caregiver than to a stranger. For example, at 4 months, Timmy smiled, laughed, and babbed more freely when interacting with his mother and quieted more quickly when she picked him up. As infants learn that their own actions affect the behavior of those around them, they begin to develop a sense of trust—the expectation that the familiar caregiver will respond when signaled—but they still do not protest when separated from her.

3. “Clear-cut” attachment phase (6–8 months to 18 months–2 years). Babies display separation anxiety, becoming upset when the adult whom they have come to rely on leaves. Separation anxiety does not always occur; like stranger anxiety (see page 142), it depends on infant temperament and the current situation. But in many cultures, separation anxiety increases between 6 and 15 months. Besides protesting the parent’s departure, older infants and toddlers approach, follow, and climb on her in preference to others. And they use the familiar caregiver as a secure base from which to explore.

4. Formation of a reciprocal relationship (18 months–2 years and on). Rapid growth in representation and language permits toddlers to understand some of the factors that influence the parent’s coming and going and to predict her return. As a result, separation protest declines. Now children start to negotiate with the caregiver to alter her goals. For example, at age 2, Caitlin asked Carolyn and David to read a story before leaving her with a baby-sitter. The extra time with her parents, along with a better understanding of when they would be back (“right after you go to sleep”), helped Caitlin withstand her parents’ absence.

According to Bowlby (1980), out of their experiences during these four phases, children construct an enduring affectionate tie to the caregiver that they can use as a secure base in the parents’ absence. This image serves as an internal working model, or set of expectations about the availability of attachment figures and their likelihood of providing support during times of stress. The internal working model becomes a vital part of personality, serving as a guide for all future close relationships (Bretherton & Munholland, 1999).
The occurrence of separation anxiety depends on infant temperament, context, and adult behavior. Here, the child’s distress at his mother’s departure will probably be short-lived because his caregiver is supportive and sensitive.

Measuring the Security of Attachment

Although virtually all family-reared babies become attached to a familiar caregiver, the quality of this relationship varies. A widely used laboratory procedure for assessing attachment quality between 1 and 2 years of age is the Strange Situation. Designed by Mary Ainsworth, it takes the baby through eight short episodes in which brief separations from and reunions with the parent occur in an unfamiliar playroom (see Table 6.2).

Observing infants’ responses to these episodes, researchers have identified a secure attachment pattern and three patterns of insecurity (Ainsworth et al., 1978; Barnett & Vondra, 1999; Main & Solomon, 1990). From the description at the beginning of this chapter, which pattern do you think Grace displayed after adjusting to her adoptive family?

**Secure attachment.** These infants use the parent as a secure base. When separated, they may or may not cry, but if they do, it is because the parent is absent and they prefer her to the stranger. When the parent returns, they actively seek contact, and their crying is reduced immediately. About 65 percent of North American infants show this pattern.

**Avoidant attachment.** These infants seem unresponsive to the parent when she is present. When she leaves, they usually are not distressed, and they react to the stranger in much the same way as to the parent. During reunion, they avoid or are slow to greet the parent, and when picked up, they often fail to cling. About 20 percent of North American infants show this pattern.

**Resistant attachment.** Before separation, these infants seek closeness to the parent and often fail to explore. When she leaves, they are usually distressed, and on her return they display angry, resistive behavior, sometimes hitting and pushing. Many continue to cry after being picked up and cannot be comforted easily. About 10 to 15 percent of North American infants show this pattern.

**Disorganized/disoriented attachment.** This pattern reflects the greatest insecurity. At reunion, these infants show confused, contradictory behaviors. They might look away while being held by the parent or approach her with flat, depressed emotion. About 5 to 10 percent of North American infants show this pattern.

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**Table 6.2** Episodes in the Strange Situation

<table>
<thead>
<tr>
<th>Episode</th>
<th>Events</th>
<th>Attachment Behavior Observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Researcher introduces parent and baby to playroom and then leaves.</td>
<td>Parent as a secure base</td>
</tr>
<tr>
<td>2</td>
<td>Parent is seated while baby plays with toys.</td>
<td>Reaction to familiar adult</td>
</tr>
<tr>
<td>3</td>
<td>Stranger enters, is seated, and talks to parent.</td>
<td>Reaction to unfamiliar adult</td>
</tr>
<tr>
<td>4</td>
<td>Parent leaves room. Stranger responds to baby and offers comfort if baby is upset.</td>
<td>Separation anxiety</td>
</tr>
<tr>
<td>5</td>
<td>Parent returns, greets baby, and offers comfort if necessary. Stranger leaves room.</td>
<td>Reaction to reunion</td>
</tr>
<tr>
<td>6</td>
<td>Parent leaves room.</td>
<td>Separation anxiety</td>
</tr>
<tr>
<td>7</td>
<td>Stranger enters room and offers comfort.</td>
<td>Ability to be soothed by stranger</td>
</tr>
<tr>
<td>8</td>
<td>Parent returns, greets baby, offers comfort if necessary, and tries to reinterest baby in toys.</td>
<td>Reaction to reunion</td>
</tr>
</tbody>
</table>

*Note:* Episode 1 lasts about 30 seconds; each of the remaining episodes lasts about 3 minutes. Separation episodes are cut short if the baby becomes very upset. Reunion episodes are extended if the baby needs more time to calm down and return to play.

*Source:* Ainsworth et al., 1978.
Stability of Attachment

Research on the stability of attachment patterns between 1 and 2 years of age yields a range of findings (Thompson, 2000). Quality of attachment is usually secure and stable for middle-SES babies experiencing favorable life conditions. And infants who move from insecurity to security typically have well-adjusted mothers with positive family and friendship ties. Perhaps many became parents before they were psychologically ready but, with social support, grew into the role. In contrast, in low-SES families with many daily stresses, attachment generally moves away from security or changes from one insecure pattern to another (Vondra, Hommerding, & Shaw, 1999; Vondra et al., 2001).

These findings indicate that securely attached babies more often maintain their attachment status than insecure babies—a trend also evident in long-term assessments, based on follow-up interviews with adolescents and young adults (Waters et al., 2000; Weinfield, Sroufe, & Egeland, 2000). The exception is disorganized/disoriented attachment—an insecure pattern that remains highly stable (Hesse & Main, 2000; Weinfield, Whaley, & Egeland, 2004). As you will soon see, many disorganized/disoriented babies experience extremely negative caregiving, which may disrupt emotional self-regulation so severely that confused, ambivalent feelings toward parents persist for many years.

Cultural Variations

Cross-cultural evidence indicates that attachment patterns must be interpreted differently in certain cultures. For example, as Figure 6.1 reveals, German infants show considerably more avoidant attachment than American babies do. But German parents value independence and encourage their infants to be nonclingy (Grossmann et al., 1985). In contrast, a study of infants of the Dogon people of Mali, Africa, revealed that none showed avoidant attachment to their mothers (True, Pisani, & Oumar, 2001). Dogon mothers remain available to their babies, holding them close and nursing promptly in response to hunger and distress.

Japanese infants, as well, rarely show avoidant attachment. An unusually high number are resistantly attached, but this reaction may not represent true insecurity. Japanese mothers rarely leave their babies in others’ care, so the Strange Situation is probably unusually stressful for them (Takahashi, 1990). Also, Japanese parents view the infant attention seeking that is part of resistant attachment as a normal indicator of infant dependency (Rothbaum et al., 2000b). Despite such cultural variations, the secure pattern is still the most common attachment quality in all societies studied (van IJzendoorn & Sagi, 1999).

Factors That Affect Attachment Security

What factors might influence attachment security? Researchers have looked closely at four important influences: (1) opportunity

![Figure 6.1](image-url)
to establish a close relationship, (2) quality of caregiving, (3) the baby’s characteristics, and (4) family context.

**Opportunity for Attachment.** In a longitudinal study, researchers followed the development of infants in an institution with a good caregiver–child ratio and a rich selection of books and toys. However, staff turnover was so rapid that the average child had 50 caregivers by age 4½ and no opportunity to establish an affectionate tie with one or a few adults. Many of these children became “late adoptees” who were placed in homes after age 4. Most developed deep ties with their adoptive parents, indicating that a first attachment bond can develop as late as 4 to 6 years of age (Tizard & Rees, 1975).

But the children displayed emotional and social problems, including an excessive desire for adult attention, “overfriendliness” to unfamiliar adults and peers, and few friendships (Hodges & Tizard, 1989). Adopted children who spent their first eight months or more in deprived Romanian orphanages often show these same difficulties (O’Connor et al., 2003). These findings suggest that fully normal development depends on establishing a close caregiver bond during the early years of life.

**Quality of Caregiving.** Dozens of studies report that sensitive caregiving—responding promptly, consistently, and appropriately to infants and holding them tenderly and carefully—is moderately related to attachment security in diverse cultures and SES groups (De Wolff & van IJzendoorn, 1997; Posada et al., 2004; van IJzendoorn et al., 2004). In contrast, insecurely attached infants tend to have mothers who engage in less physical contact, handle them awkwardly or “routinely,” and are sometimes resentful and rejecting (Ainsworth et al., 1978; Pederson & Moran, 1996).

Cultures, however, vary in the way they view sensitivity toward infants. Among the Gusii people of Kenya, for example, mothers rarely cuddle, hug, or interact playfully with their babies, although they are very responsive to their infants’ needs. Yet most Gusii infants appear securely attached (LeVine et al., 1994). This suggests that security depends on attentive caregiving, not necessarily on frequent physical affection or face-to-face interaction. Puerto Rican mothers, who highly value obedience and socially appropriate behavior, often physically direct and limit their babies’ actions—a caregiving style linked to attachment security in Puerto Rican culture. Yet in many Western cultures, such physical control predicts insecurity (Carlson & Harwood, 2003).

Compared with securely attached infants, avoidant babies tend to receive overly stimulating, intrusive care. By avoiding the mother, these infants try to escape from overwhelming interaction. Resistant infants often experience inconsistent care. Their mothers are unresponsive to infant signals. Yet when the baby begins to explore, these mothers interfere. As a result, the baby is overly dependent as well as angry at the mother’s lack of involvement (Cassidy & Berlin, 1994; Isabella & Belsky, 1991).

Highly inadequate caregiving is a powerful predictor of disruptions in attachment. Child abuse and neglect (topics we will consider in Chapter 8) are associated with all three forms of attachment insecurity. Among maltreated infants, disorganized/disoriented attachment is especially high (van IJzendoorn, Schuengel, & Bakermans-Kranenburg, 1999). Persistently depressed mothers and parents suffering from a traumatic event, such as loss of a loved one, also tend to promote the uncertain behaviors of this pattern (Campbell et al., 2004; van IJzendoorn, 1995). Observations reveal that they often display frightening, contradictory, and unpleasant behaviors, such as looking scared, teasing the baby, holding the baby stiffly at a distance, or seeking reassurance from the upset child (Goldberg et al., 2003).

**Infant Characteristics.** Because attachment is the result of a relationship that builds between two partners, infant characteristics should affect how easily it is established. For example, babies whose temperament is emotionally reactive and difficult are more likely to develop later insecure attachments (van IJzendoorn et al., 2004; Vaughn & Bost, 1999). However, caregiving is involved. In a study extending from birth to age 2, difficult infants more often had highly anxious mothers, a combination that, by the second year, often resulted in a “disharmonious relationship” characterized by both maternal insensitivity and attachment insecurity (Symons, 2001).

Overall, infant characteristics are only weakly related to attachment quality because many child attributes can lead to secure attachment as long as the caregiver behaves sensitively (Seifer & Schiller, 1995). Interventions that teach parents to interact with difficult-to-care-for infants are highly successful
in enhancing both sensitive care and attachment security (Bakermans-Kranenburg, van IJzendoorn, & Juffer, 2003). But when parents’ capacity is strained—by their own personalities or by stressful living conditions, such as a failing marriage or financial difficulties—then infants with illnesses, disabilities, and difficult temperaments are at high risk for attachment problems. Child care—as the Social Issues box on the following page indicates—is yet another context with consequences for the infant–parent attachment relationship.

Parents’ Internal Working Models. Parents bring to the family context their own history of attachment experiences, from which they construct internal working models that they apply to the bonds they establish with their babies. Monica, who recalled her mother as tense and preoccupied, expressed regret that they had not had a closer relationship. Is her image of parenthood likely to affect Grace’s attachment security? To assess parents’ internal working models, researchers have asked them to evaluate childhood memories of attachment experiences (Main & Goldwyn, 1998). In studies in several Western nations, parents who showed objectivity and balance in discussing childhood experiences, regardless of whether they were positive or negative, tended to have securely attached infants. In contrast, parents who either dismissed the importance of early relationships or described them in angry, confused ways usually had insecurely attached babies (Slade et al., 1999; van IJzendoorn, 1995).

But internal working models are reconstructed memories affected by many factors, including relationship experiences over the life course, personality, and current life satisfaction. Longitudinal research shows that negative life events can weaken the link between an individual’s attachment security in infancy and a secure internal working model in adulthood. And insecurely attached babies who become adults with insecure internal working models often have lives that, based on self-reports in adulthood, are filled with family crises (Waters et al., 2000; Weinfield, Sroufe, & Egeland, 2000).

In sum, early rearing experiences do not destine us to become sensitive or insensitive parents. Rather, the way we view our childhoods—our ability to come to terms with negative events and to integrate new information into our working models—is much more influential in how we rear our children than the actual history of care we received.

Multiple Attachments

We have already indicated that babies develop attachments to a variety of familiar people—not just mothers but also fathers, siblings, grandparents, and professional caregivers. Although Bowlby (1969) acknowledged the existence of multiple attachments, he believed that infants are predisposed to direct their attachment behaviors to a single special person, especially when they are distressed. When anxious or unhappy, most babies do prefer to be comforted by their mother. But this preference typically declines over the second year. And when babies are not distressed, they approach, vocalize to, and smile at both parents equally (Lamb, 1997).

Fathers. Like that of mothers, fathers’ sensitive caregiving predicts attachment security (van IJzendoorn et al., 2004). Nevertheless, mothers and fathers in many cultures—Australia, India, Israel, Italy, Japan, and the United States—tend to interact differently with babies. Mothers devote more time to physical care and expressing affection, fathers to playful interaction (Roopnarine et al., 1990).

Mothers and fathers also play differently. Mothers more often provide toys, talk to infants, and gently engage in conventional games like pat-a-cake. In contrast, fathers tend to engage in highly arousing physical play with bursts of excitement, especially with their infant sons (Feldman, 2003; Paquette, 2004). Through a stimulating, surprising play style, perhaps fathers teach children how to approach unfamiliar social situations, such as play with peers.

In cultures such as Japan’s, where long work hours prevent most fathers from sharing in infant caregiving, play is a vital context in which fathers build secure attachments (Hewlett, 2004; Schwalb et al., 2004). In many Western nations, however, a strict division of parental roles—mother as caregiver, father as playmate—has changed over the past quarter century...
Does Child Care in Infancy Threaten Attachment Security and Later Adjustment?

Research suggests that infants placed in full-time child care before 12 months of age are somewhat more likely than infants who remain at home to display insecure attachment—especially avoidance—in the Strange Situation (Belsky, 1992, 2001). Does this mean that infants who experience daily separations from their employed parents and early placement in child care are at risk for developmental problems? Not necessarily. The relationship between child care and emotional well-being depends on both family and child-care experiences.

**Family Circumstances.** We have seen that family conditions affect attachment security. Many employed women find the dual pressures of work and parenting stressful. Some, especially those who receive little help from the child’s father, may respond less sensitively to their babies (Stifter, Coulehan, & Fish, 1993). Other employed parents probably value and encourage their infants’ independence. Or their babies may be unfazed by the Strange Situation because they are used to separating from their parents. In these cases, avoidance in the Strange Situation may represent healthy autonomy rather than insecurity (Clarke-Stewart, Althusen, & Goosens, 2001).

**Quality and Extent of Child Care.** Long periods spent in poor-quality child care may contribute to a higher rate of insecure attachment. In the U.S. National Institute of Child Health and Human Development (NICHD) Study of Early Child Care—the largest longitudinal study to date, including more than 1,300 infants and their families—child care alone did not contribute to attachment insecurity. But when babies were exposed to combined home and child-care risk factors—insensitive caregiving at home along with insensitive caregiving in child care, long hours in child care, or more than one child-care arrangement—the rate of insecurity increased. Overall, mother–child interaction was more favorable when children attended higher-quality child care and were in child care for fewer hours (NICHD Early Child Care Research Network, 1997, 1999).

Furthermore, when the NICHD sample reached 3 years of age, a history of higher-quality child care predicted better social skills (NICHD Early Child Care Research Network, 2002b). At the same time, at age 4½ to 5, children averaging more than 30 child-care hours per week displayed more behavior problems, especially defiance, disobedience, and aggression (NICHD Early Child Care Research Network, 2003a). This does not necessarily mean that child care causes behavior problems. Rather, heavy exposure to substandard care, which is widespread in the United States, may promote these difficulties. In Australia, infants enrolled full-time in government-funded, high-quality child care have a higher rate of secure attachment than infants informally cared for by relatives, friends, or babysitters. And amount of time in child care is unrelated to behavior problems in Australian preschoolers (Love et al., 2003).

**Conclusions.** Taken together, research suggests that some infants may be at risk for attachment insecurity and adjustment problems due to inadequate child care, long hours in child care, and the joint pressures their mothers experience from full-time employment and parenthood. But it is inappropriate to use these findings to justify a reduction in child-care services. When family incomes are limited or mothers who want to work are forced to stay at home, children’s emotional security is not promoted.

Instead, it makes sense to increase the availability of high-quality child care, to provide paid employment leave so parents can limit the hours their children spend in child care, and to educate parents about the vital roles of sensitive caregiving and child-care quality in early emotional development. Return to Chapter 5, page 131, to review signs of developmentally appropriate child care for infants and toddlers.
in response to women’s workforce participation. Recent surveys indicate that in dual-earner families, U.S. fathers devote 85 percent as much time, and Canadian fathers 75 percent as much time, as mothers do to children—on average, about 3½ hours per day (Pleck & Masiadrelli, 2004; Sandberg & Hofferth, 2001; Zuzanek, 2000). Paternal time engaged with or accessible to children is fairly similar across SES and ethnic groups, with one exception: Hispanic fathers spend more time engaged, probably due to the particularly high value Hispanic cultures place on family (Cabrera & Garcia-Coll, 2004; Parke et al., 2004; Wilcox, 2002).

A warm marital relationship supports both parents’ involvement with babies, but it is especially important for fathers (Lamb & Lewis, 2004). And in studies carried out in many societies and ethnic groups, fathers’ affectionate care of young children predicted later cognitive, emotional, and social competence as strongly, and occasionally more strongly, than did mothers’ (Rohner & Veneziano, 2001; Veneziano, 2003).

**Siblings.** Despite a smaller family size, 80 percent of North American and European children grow up with at least one sibling (Dunn, 2004). The arrival of a baby brother or sister is a difficult experience for most preschoolers, who, realizing that they must now share their parents’ attention and affection, often become demanding, clingy, and deliberately naughty for a time. Security of attachment also typically declines, especially for children over age 2 (old enough to feel threatened and displaced) and for those with mothers under stress (Baydar, Greek, & Brooks-Gunn, 1997; Teti et al., 1996).

Yet resentment is only one feature of a rich emotional relationship that builds between siblings after a baby’s birth. Older children also show affection and concern when the infant cries. By the end of the first year, babies typically spend much time with older siblings and are comforted by the presence of a preschool-age brother or sister during short parental absences. And in the second year, toddlers often imitate and join in play with older siblings (Barr & Hayne, 2003).

Nevertheless, individual differences in sibling relationships emerge early. Temperament plays an important role. For example, conflict is greater when one sibling is emotionally intense or highly active (Brody, Stoneman, & McCoy, 1994; Dunn, 1994). And maternal warmth toward both children is related to positive sibling interaction and to preschoolers’ support of a distressed younger sibling (Volling, 2001; Volling & Belsky, 1992). Mothers who frequently play with their young children and explain the toddler’s wants and needs to the preschool sibling foster sibling cooperation. In contrast, maternal harshness and lack of involvement are linked to antagonistic sibling relationships (Howe, Aquan-Assee, & Bukowski, 2001).

**Attachment and Later Development**

According to psychoanalytic and ethological theories, the inner feelings of affection and security that result from a healthy attachment relationship support all aspects of psychological development. Yet contradictory evidence exists. In longitudinal research, secure infants sometimes developed into more competent children and adolescents than did their insecure counterparts, but not always (Elicker, Englund, & Sroufe, 1992; Schneider, Atkinson, & Tardif, 2001; Stams, Juffer, & van Ijzendoom, 2002).

What accounts for this inconsistency? Mounting evidence indicates that continuity of caregiving determines whether attachment security is linked to later development (Lamb et al., 1985; Thompson, 2000). Much research shows that parents who respond sensitively not just in infancy but also during later years promote many aspects of development: a more confident self-concept, more advanced emotional understanding, more favorable relationships with teachers and peers, a stronger sense of moral responsibility, and higher motivation to achieve in school (Thompson, Easterbrooks, & Padilla-Walker, 2003). In contrast, children of parents who react insensitively over a long period are at risk for a wide array of developmental difficulties.

In sum, a secure attachment in infancy launches the parent–child relationship on a positive path. But the effects of early attachment security are conditional—dependent on the quality of the baby’s future relationships. A child who experiences tender care in infancy but lacks sympathetic ties later is at risk for problems. In contrast, a child whose parental caregiving improves or who has other compensating ties outside the immediate family is likely to display resilience, or recovery from adversity (Belsky & Fearon, 2002).
Ask Yourself

**Review**
What factors explain stability in attachment pattern for some children and change for others? Are these factors also involved in the link between attachment in infancy and later development? Explain.

**Apply**
Timmy’s mother, Vanessa, was recently divorced and also worked long hours, so a baby-sitter usually picked Timmy up from childcare. One day, when Vanessa came for Timmy herself, he ignored her. What attachment pattern was Timmy displaying? What factors might have contributed to his response? (pp. 151, 153)

**Reflect**
How would you characterize your internal working model? What factors, in addition to your relationship with your parents, might have influenced it?

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Self-Development During the First Two Years

Infancy is a rich, formative period for the development of physical and social understanding. In Chapter 5, you learned that infants develop an appreciation of the permanence of objects. And in this chapter, we have seen that over the first year, infants recognize and respond appropriately to others’ emotions and distinguish familiar from unfamiliar people. That both objects and people achieve an independent, stable existence for the infant implies that knowledge of the self as a separate, permanent entity is also emerging.

Self-Awareness

After Caitlin’s bath, Carolyn often held her in front of the bathroom mirror. As early as the first few months, Caitlin smiled and returned friendly behaviors to her image. At what age did she realize that the charming baby gazing and grinning back was herself?

**Beginnings of Self-Awareness.** Babies’ remarkable capacity for intermodal perception (see page 111 in Chapter 4) supports the beginnings of self-awareness (Rochat, 2003). As they feel their own touch, feel and watch their limbs move, and feel and hear themselves cry, babies experience intermodal matches that differentiate their own body from surrounding bodies and objects.

Over the first few months, infants distinguish their own visual image from other stimuli. When showed two side-by-side video images of their kicking legs, one from their own perspective (camera behind the baby) and one from an observer’s perspective (camera in front of the baby), 3-month-olds looked longer at the unfamiliar, observer’s view (Rochat, 1998). By 4 months, infants look and smile more at video images of others than at video images of themselves, indicating that they treat another person (as opposed to the self) as a social partner (Rochat & Striano, 2002).

**Self-Recognition.** During the second year, toddlers become consciously aware of the self’s physical features. Seeing their image in a mirror, they may act silly or coy, playfully experimenting with the way the self looks (Bullock & Lutkenhaus, 1990). In one study, 9- to 24-month-olds were placed in front of a mirror. Then, under the pretext of wiping the baby’s face, each mother rubbed red dye on her infant’s nose. Around 15 months, toddlers began to rub their strange-looking red noses, a response indicating awareness of their unique appearance (Lewis & Brooks-Gunn, 1979). Around age 2, self-recognition—identification of the self as a physically unique being—is well-established. Children point to themselves in photos and refer to themselves by name or with a personal pronoun (“I” or “me”).

This 1-year-old notices the correspondence between her own movements and the movements of the image in the mirror, a cue that helps her figure out that the baby is really herself.
According to many theorists, self-awareness develops as infants and toddlers increasingly realize that their own actions cause objects and people to react in predictable ways (Harter, 1998). In support of this idea, babies whose parents encourage exploration and respond sensitively to their signals tend to be advanced in self-development (Pipp, Easterbrooks, & Harmon, 1992).

As infants act on the environment, they notice effects that help them sort out self, other people, and objects (Rochat, 2001). For example, batting a mobile and seeing it swing in a pattern different from the infant’s own actions gives the baby information about the relation between self and physical world. Smiling and vocalizing at a caregiver who smiles and vocalizes back helps clarify the relation between self and social world. The contrast between these experiences helps infants build an image of the self as separate from, but vitally connected to, external reality.

**Self-Awareness and Early Emotional and Social Development.** Self-awareness quickly becomes a central part of children’s emotional and social lives. Recall that self-conscious emotions depend on a strengthening sense of self. Self-awareness also supports initial efforts to appreciate others’ perspectives. It is associated with the beginnings of empathy—the ability to understand another’s emotional state and feel with that person, or respond emotionally in a similar way. For example, toddlers start to give to others what they themselves find comforting—a hug, a reassuring comment, or a favorite blanket (Hoffman, 2000). At the same time, they demonstrate clearer awareness of how to upset others. One 18-month-old heard her mother talking to another adult about an older sibling: “Anny is really frightened of spiders” (Dunn, 1989, p. 107). The innocent-looking toddler ran to the bedroom, returned with a toy spider, and pushed it in front of Anny’s face!

**Categorizing the Self**

Because language permits children to represent the self more clearly, it greatly enhances self-awareness from the second year on. Between 18 and 30 months, children develop a categorical self as they categorize themselves and others on the basis of age (“baby,” “boy,” or “man”), sex (“boy” or “girl”), physical characteristics (“big,” “strong”), and even goodness versus badness (“I a good girl,” “Tommy mean!”) (Stipek, Gralinski, & Kopp, 1990). Toddlers use their limited understanding of these social categories to organize their own behavior. For example, as early as 18 months, toddlers select and play in a more involved way with toys that are stereotyped for their own gender—dolls and tea sets for girls, trucks and cars for boys. Parents then encourage these preferences by responding positively when toddlers display them (Fagot, Leinbach, & O’Boyle, 1992). As we will see in Chapter 8, gender-typed behavior increases dramatically in early childhood.

**Self-Control**

Self-awareness also contributes to strengthening of effortful control (see page 146). To behave in a self-controlled fashion, children must have some ability to think of themselves as separate, autonomous beings who can direct their own actions. And they must have the representational and memory capacities to recall a caregiver’s directive (“Caitlin, don’t touch that light socket!”) and apply it to their own behavior.

As these capacities emerge between 12 and 18 months, toddlers first become capable of compliance. They show clear awareness of caregivers’ wishes and expectations and can obey simple requests and commands. And as every parent knows, they can also decide to do just the opposite! But for most, opposition is far less common than compliance with an eager, willing spirit, which suggests that the child is beginning to adopt the adult’s directives as his own (Kochanska, Murray, & Harlan, 2000). Compliance quickly leads to toddlers’ first conscience-like verbalizations—for example, correcting the self by saying “No, can’t” before reaching for a treat or jumping on the sofa (Kochanska, 1993).

Researchers often study the early emergence of self-control by giving children tasks that, like the situations just mentioned, require delay of gratification—waiting for an appropriate time and place to engage in a tempting act. Between ages 1 ½ and 3, children show an increasing capacity to wait before eating a treat, opening a present, or playing with a toy (Vaughn, Kopp, & Krakow, 1984).

Children who are advanced in development of attention and language tend to be better at delaying gratification—findings that help explain why girls are typically more self-controlled than boys (Kochanska & Knaack, 2003). Some toddlers already

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Encouraging this toddler to help wipe up spilled milk fosters compliance and the beginnings of self-control. He joins in the clean-up task with an eager, willing spirit, suggesting that he is beginning to adopt the adult’s directive as his own.
use verbal and other attention-diverting techniques—talking to themselves, singing, or looking away—to keep from engaging in prohibited acts. And toddlers who experience parental warmth and gentle encouragement are advanced in self-control (Kochanska, Murray, & Harlan, 2000; Lehman et al., 2002). Such parenting seems to encourage as well as model patient, nonimpulsive behavior.

As self-control improves, parents gradually expand the rules they expect toddlers to follow, from safety and respect for property and people to family routines, manners, and responsibility for simple chores (Gralinski & Kopp, 1993). Still, toddlers’ control over their own actions depends on constant parental oversight and reminders. Several prompts (“Remember, we’re going to go in just a minute”) and gentle insistence were usually necessary to get Caitlin to stop playing so that she and her parents could go on an errand. Applying What We Know above summarizes ways to help toddlers develop compliance and self-control.

As the second year of life drew to a close, Carolyn, Monica, and Vanessa were delighted at their children’s readiness to learn the rules of social life. As we will see in Chapter 8, advances in cognition and language, along with parental warmth and reasonable maturity demands, lead preschoolers to make tremendous strides in this area.

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Erikson’s Theory of Infant and Toddler Personality

What personality changes occur during Erikson’s stages of basic trust versus mistrust and autonomy versus shame and doubt?

- According to Erikson, warm, responsive caregiving leads infants to resolve the psychological conflict of *basic trust versus mistrust* on the positive side. During toddlerhood, the conflict of *autonomy versus shame and doubt* is resolved favorably when parents provide appropriate guidance and reasonable choices.

Emotional Development

Describe changes in happiness, anger, and fear over the first year, noting the adaptive function of each.

- During the first half-year, *basic emotions* gradually become clear, well-organized signals. The *social smile* appears between 6 and 10 weeks, laughter around 3 to 4 months. Happiness strengthens the parent–child bond and both reflects and supports physical and cognitive mastery.

- Anger and fear, especially in the form of *stranger anxiety*, increase in the second half-year. Newly mobile babies use the familiar caregiver as a *secure base*, or point from which to explore. Sadness, while less frequent than anger, is common when caregiver–infant communication is seriously disrupted. These reactions have survival value as infants’ motor capacities improve.

Summarize changes during the first two years in understanding others’ emotions, expression of self-conscious emotions, and emotional self-regulation.

- Around 5 months and strengthening thereafter, babies perceive facial expressions as organized, meaningful patterns. Toward the end of the first year, *social referencing* appears; infants actively seek emotional information from caregivers. By the middle of the second year, infants appreciate that others’ emotional reactions may differ from their own.

- During toddlerhood, self-awareness and adult instruction provide the foundation for *self-conscious emotions*. Caregivers help infants with *emotional self-regulation* by relieving distress and engaging in sensitive, stimulating play. During the second year, growth in representation and language leads to more effective ways of regulating emotion.

Temperament and Development

What is temperament, and how is it measured?

- Children differ greatly in *temperament*—early-appearing, stable individual differences in reactivity and self-regulation. Three patterns of temperament—the *easy child*, the *difficult child*, and the *slow-to-warm-up child*—were identified in the New York Longitudinal Study. Difficult children, especially, are likely to display adjustment problems. Another model of temperament, devised by Mary Rothbart, includes *effortful control*, the ability to regulate one’s reactivity.

- Temperament is assessed using parental reports, behavior ratings by others familiar with the child, and laboratory observations. A combination of laboratory and physiologic measures has been used to distinguish *inhibited*, or shy, children from *uninhibited*, or sociable, children.

Development of Attachment

Describe ethological theory of attachment and the development of attachment during the first 2 years.

- The most widely accepted perspective on development of attachment is *ethological theory*. It views babies as biologically prepared to contribute actively to ties established with their caregivers, which ensure safety and provide support for exploration and mastery.

- In early infancy, a set of built-in behaviors encourages the parent to remain close to the baby. Around 6 to 8 months, *separation anxiety* and use of the parent as a secure base indicate that a true attachment bond has formed. As representation and language develop, toddlers try to alter the parent’s goals through negotiation. Out of early caregiving experiences, children construct an *internal working model* that serves as a guide for all future close relationships.

Discuss the role of heredity and environment in the stability of temperament, including the goodness-of-fit model.

- Stability of temperament is generally low to moderate. Temperament has a genetic foundation, but child rearing and cultural beliefs and practices have much to do with maintaining or changing it. In the *goodness-of-fit model*, parenting practices that create a good fit with the child’s temperament help children achieve more adaptive functioning.
affectional tie with an adult, sensitive caregiving, and family circumstances. Parents’ internal working models are good predictors of infant attachment patterns, but many factors in addition to parents’ childhood experiences contribute to their working models.

Discuss infants’ attachments to fathers and siblings.

- Infants develop strong affectionate ties to fathers, whose sensitive caregiving predicts secure attachment. Fathers in a variety of cultures engage in more exciting, physical play with babies than do mothers.

- Early in the first year, infants begin to build rich emotional relationships with siblings that mix affection and caring with rivalry and resentment. Child temperament and parenting practices influence the quality of sibling relationships.

Describe and interpret the relationship between secure attachment in infancy and later development.

- Findings on the relationship between attachment security in infancy and later competence are inconsistent. Continuity of caregiving is the crucial factor that determines whether attachment security is linked to favorable development.

Self-Development During the First Two Years

Describe the development of self-awareness in infancy and toddlerhood, along with the emotional and social capacities it supports.

- Babies’ capacity for intermodal perception supports early development of self-awareness. Young infants distinguish their own visual image from other stimuli.

In the second year, self-recognition develops. Toddlers become aware of their unique appearance, and 2-year-olds point to themselves in photos and refer to themselves by name or with a personal pronoun.

- Self-awareness supports toddlers’ first efforts to appreciate others’ perspectives, including the beginnings of empathy. As language strengthens, between 18 and 30 months toddlers develop a categorical self based on age, sex, physical characteristics, and goodness and badness.

- Self-awareness also provides the foundation for compliance between 12 and 18 months and an increasing capacity for delay of gratification between 1½ and 3 years. Children who are advanced in development of attention and language and who have warm, encouraging parents tend to be more self-controlled.

Important Terms and Concepts

attachment (p. 149)  easy child (p. 145)  self-conscious emotions (p. 144)  autonomy versus shame and doubt (p. 141)  self-recognition (p. 157)  avoidant attachment (p. 151)  sensitive caregiving (p. 153)  basic emotions (p. 141)  empathy (p. 158)  separation anxiety (p. 150)  basic trust versus mistrust (p. 141)  ethological theory of attachment (p. 150)  inhibited, or shy, child (p. 146)  categorical self (p. 158)  goodness-of-fit model (p. 148)  internal working model (p. 150)  compliance (p. 158)  resistant attachment (p. 151)  secure attachment (p. 151)  delay of gratification (p. 158)  secure base (p. 142)  difficult child (p. 145)  disorganized/disoriented attachment (p. 151)  self-control (p. 158)  disinhibited, or sociable, child (p. 146)