chapter 6
Socioemotional Development in Infants and Toddlers

Erin remembers the first time she left her 1-year-old son Patrick at a day care center. Until then, Erin’s mother had been taking care of Patrick during the day, but now it was time for him to spend some time in day care while Erin was at work. Erin had heard about Heartland Children’s Daycare through friends and had taken Patrick for a visit during one of the center’s open houses. Patrick was shy at first; he seemed overwhelmed by all of the new faces and things to do. Gradually, however, he warmed up and began playing with some of the toys and books. This was a good sign that Patrick might do well in day care.

On the drive over to the center on Patrick’s first day, Erin tried to be as cheerful as she could. She mentioned all of the new things Patrick could do at day care: painting, listening to stories, playing outside, and meeting new friends. Patrick was quiet.

At the center, Patrick clung tightly to his mother and peered around. The center was busy, with lots of children running and playing. One of the teachers came over to greet Patrick. She bent down to talk to him, but Patrick shied away. Erin again reminded him of all of the fun he would have, but she was barely holding back her own tears. It was hard for her to leave Patrick in this new setting. Finally, Erin kissed Patrick on the cheek. After saying goodbye, she left Patrick with the teacher. When she got back to her car, Erin just sat and worried. Was she doing the right thing? Would Patrick be sad all day? Would he ever adjust to day care?

After studying this chapter, you should be able to use at least a dozen concepts to help Erin understand Patrick’s reaction to his new setting. You will be able to explain what researchers know about infant–parent attachment and about when and why young children fear strangers and new settings. Does Patrick seem to have a secure attachment to his mother? What clues can you find in the scenario that you just read? How does Patrick’s temperament factor into his reaction? What can Erin do to help Patrick cope with the emotions he feels? Finally, what should Erin expect regarding Patrick’s adjustment to the new center and the kinds of friendships he might make there? Did Erin handle Patrick’s first day well?

As you read this chapter, look for the questions that ask you to think about what you’re learning from Erin’s perspective.
Most parents remember the first time they left their child in a day care center or with a baby-sitter. That first time is usually not easy. Some children get very upset; others react more calmly. In this chapter, we explore some of the reasons behind these differences. We begin by looking at how researchers study human attachment and how they classify the various types of attachments that infants form with their parents. We also look at temperament and at the types of temperament that have been identified, and we discuss emotional development in infants and toddlers. We conclude the chapter by exploring the types of social interactions infants and toddlers develop and how they play with friends and peers. As you would imagine, children's attachment styles, temperaments, emotions, and social expectations and skills all contribute to their varied responses to situations like Patrick's first morning in day care.

**Attachment**

In this first section, we look at the emotional bond that develops between an infant and his or her primary caregivers. Although most of us would call it “love,” researchers refer to this bond by its more technical name: attachment. Attachment is an emotional tie to a specific person or persons that endures across time and space (Ainsworth, 1973). Infants don’t bond with everyone. They reserve this special emotional attachment for the select few who provide their primary care. From its beginnings in the 1950s, most research in this area has focused primarily on the attachments that infants form with their mothers. Of course, today, many infants receive a substantial amount of care from fathers, older siblings, grandparents, other close relatives, and day care providers, and they can form attachments with whoever provides consistent and loving care. In our discussion, we will sometimes refer to “caregivers,” though this term sounds too technical for the special emotions and relationships that we will discuss. We’ll use the term mother when describing research that primarily investigated mother attachments, but we hope that fathers and other caregivers will recognize that their relationships follow a similar path.

**As you study this section, ask yourself these questions:**

- What are the historical roots that gave rise to modern research on attachment? How do these roots affect our thinking about attachment today?
- How do researchers use the “Strange Situation” to measure infant attachment? What kinds of attachments have investigators identified?
- What primary factors influence healthy attachments? What primary factors influence less healthy attachments?
- How do the emotional bonds that are established early in life influence development throughout childhood?

**The Story of Attachment Research**

Modern research on human attachment has two important roots: the ethological theory of John Bowlby and the classic primate experiments conducted by Harry Harlow.

**John Bowlby’s Ethological Theory.** In John Bowlby’s (1958, 1988) ethological theory, attachment emerges from a system of traits and behaviors that have evolved over time to increase the infant’s chances of survival. Human infants are dependent on their caregivers for a relatively long period of time. The deep emotional bond of attachment increases the amount of attention and the quality of care that an infant receives. Bowlby (1958) commented, “It is fortunate for their survival that babies are
Chapter 6. Socioemotional Development in Infants and Toddlers

so designed by Nature that they beguile and enslave mothers” (p. 367). Smiling, crying, and calling are behaviors that infants use to bring adults closer. Newborns follow adults with their eyes. Later, as they learn to reach, crawl, and then walk, children are able to physically find, follow, and cling to their caregivers. Bowlby emphasized the infant’s smile as a powerful social releaser of nurturing behavior in adults. Adults have evolved to respond positively to these social cues and to see the infant’s round face, bright eyes, and chubby appearance as cute and cuddly.

Evolution, then, has provided an interactive system that links nurturing adults to infants who depend on the adults’ loving care. Bowlby believed that attachment is especially evident when an infant seeks nearness or proximity to a protective adult in moments of distress or fear (Thompson, 1998). The attachment figure provides a secure base of emotional comfort for the infant.

Bowlby (1969) proposed that infants develop attachments in the following four stages:

1. Orientation without discrimination (first two to three months after birth). Infants signal and respond to any available and caring adult. In this initial stage, an attachment to a specific caregiver has not yet formed.

2. Orientation with discrimination (2 to 6 months of age). Infants begin to show a decided preference for their primary caregivers, signaling and responding more to the people who take care of them than to other people.

3. Safe-base attachment (6 months to 3 years of age). Infants and toddlers actively seek to be near their favored caregivers. They follow and cling to them, and they use them as a safe base to explore the environment. Infants and, later, toddlers often become visibly distressed when separated from their attachment figures, indicating that the emotional bond endures across both time and space. Fear of strangers also emerges.

4. Goal-corrected partnerships (3 years of age and up). Children begin to understand the feelings and motives of their caregivers. The relationship goes both ways now: Children can adjust or “correct” their behaviors to the changing needs and desires of their attachment figures, just as attachment figures adapt to children’s changing needs. For example, children learn that sometimes their attachment figures are busy or have other demands that conflict with caregiving. There is now a more integrated emotional relationship between child and caregiver.

Since the 1950s, Bowlby’s ethological theory has provided the dominant framework for study of the special bonds between infants and adults.

Harry Harlow’s Research with Rhesus Monkeys. Also during the 1950s, psychologist Harry Harlow conducted one of the most famous series of experiments in child development research. Harlow raised infant rhesus monkeys with the two types of surrogate (substitute) “mothers” shown in Figure 6.1 (Harlow & Zimmermann, 1959). One surrogate was made of bare wire mesh; the other had a soft cloth covering. Would infant monkeys form an attachment to either of these objects? Would the presence of a surrogate provide any emotional support for the infant? The cloth-covered surrogate did. With his experiments Harlow provided a convincing demonstration that the critical ingredient in attachment formation is contact comfort—the comfortable feeling that infants gain by clinging to a soft attachment figure.
Harlow’s finding contradicted the psychoanalytic and behavioral theories that were predominant at this time. These theories predicted that infants would form attachments with the caregiver who provided food. In psychoanalytic theory, oral gratification during feeding establishes the initial bond between infant and mother (recall Freud’s oral stage, discussed in Chapter 1). In behavioral theory, food serves as a powerful reinforcer for behaviors related to attachment. Feeding was not what determined attachment for Harlow’s monkeys, however. Even when the infants received milk from the wire mesh mother, they spent the great majority of their time clinging to the cloth mother. Harlow theorized that the cloth mother provided the infants with the kind of emotional security John Bowlby had described. When placed in an open room or an unfamiliar setting, infant monkeys without their cloth mothers showed extreme anxiety. They typically huddled in the corner, rocking and hugging themselves. But when their cloth mothers were in the room, these same infant monkeys showed a very different reaction. They would hug and cling to the mothers, and then, finding security in the mothers’ presence, they would explore the room and play freely. When confronted with a fear stimulus (e.g., a clanging robot or a model of a giant insect), the infant monkeys first sought the comfort of their cloth mothers and then turned bravely to face their fears. The mother surrogates that provided contact comfort obviously served as the secure base that these infant monkeys needed. Mere feeding provided no such benefit.

Taken together, Bowlby and Harlow’s findings provided the lens through which subsequent researchers have examined infant–parent attachments. Infants have formed an emotional bond to a specific person when they seek closeness to that person as a secure base. When separated from this person, the infant shows distress. When reunited with this person, the infant clings to the attachment figure and becomes emotionally comfortable again.

Think About Erin . . .
What similarities do you see between the reactions of Harlow’s monkeys to strangers and separation and Patrick’s behavior on his first day in day care? How were Harlow’s experiments similar to situations faced by human children?

Where do infant monkeys turn when they are frightened? What does this response tell us about the attachment that they have formed with their caregivers?
Mary Ainsworth and the Strange Situation

Now let’s look at how researchers built on Bowlby and Harlow’s work to investigate human attachment relationships.

Secure Attachment in the Strange Situation. To investigate attachment in human infants, Mary Ainsworth developed the Strange Situation test (Ainsworth, 1973; Ainsworth et al., 1978; Ainsworth & Wittig, 1969). Following Bowlby and Harlow, Ainsworth based her procedure on the idea that infants will seek to be near their attachment figure when they are distressed by an unfamiliar setting or an unfamiliar person. The Strange Situation consists of eight episodes that are strictly scripted to allow researchers to observe attachment behaviors in human infants, as described below and in Table 6.1. The purpose is to place the infant in a “strange” or unfamiliar setting with the primary caregiver (in Ainsworth’s time, this was almost exclusively the mother). Does the infant use the mother as a secure base for exploring the new setting? Does the infant become distressed when the mother leaves and seek her proximity when she returns? Does the infant prefer the mother over an unfamiliar adult?

<table>
<thead>
<tr>
<th>TABLE 6.1 Mary Ainsworth’s Strange Situation Procedure</th>
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<tbody>
<tr>
<td>EPISODE</td>
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<td>---------------------------------------------------------</td>
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<tr>
<td>1. Introduction: Assistant introduces mother and baby to the room. This episode lasts 30 seconds; the other episodes last approximately 3 minutes each.</td>
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<tr>
<td>2. Unfamiliar room: Mother places baby on floor with toys and sits in chair. Mother is told not to direct baby’s actions but otherwise to respond normally.</td>
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<tr>
<td>3. Stranger enters: Unfamiliar female adult knocks on door, then enters. Stranger speaks with mother, then approaches baby to play.</td>
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<tr>
<td>4. Mother leaves: Mother quietly leaves the room, leaving baby with the stranger. Stranger returns to sit in her chair.</td>
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<tr>
<td>5. Reunion; stranger leaves: Mother returns, and stranger leaves. Mother comforts baby if baby wishes and returns baby to play with the toys.</td>
</tr>
<tr>
<td>6. Mother leaves again: Mother says “bye-bye” and leaves infant alone in the room.</td>
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<tr>
<td>7. Stranger enters again: While baby is still alone, the same stranger enters again. Stranger sits in chair, then calls or approaches baby to play.</td>
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<tr>
<td>8. Reunion; stranger leaves: Mother returns and stranger leaves. Mother picks up baby for a reunion that ends the procedure.</td>
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The procedure begins when the mother brings her infant into a laboratory setting, almost exclusively on a university campus. Infants are normally observed at about one year of age. The setting is an average-sized room with a few chairs and interesting toys strewn around. An observation mirror on one wall usually permits observers to videotape the sessions for later analysis. After a 30-second introductory period, the mother places the baby on the floor in the center of the room and sits in one of the chairs. Most infants are wary of the unfamiliar setting and usually situate themselves so that they can maintain visual contact with their mothers.

After 3 minutes, an unfamiliar female adult comes in. In a friendly manner, she speaks to the mother and then approaches the infant to play. Most infants show signs of stranger anxiety, a wariness or fear of unfamiliar adults. Infants might allow the stranger to approach and play, although most remain wary. Next, the mother calmly leaves the room. Losing their secure base, most infants show renewed stranger anxiety. They are no longer willing to play with the stranger and instead move to the door (or to the mother's chair), where they whine, cry, or show other visible signs of distress that indicate separation anxiety.

For the next episode, the mother returns and the stranger leaves. Infants joyfully hug and cling tightly to their mothers. Feeling secure once more, infants resume their play. As the episodes continue, the mother exits again, leaving the infant alone; then the stranger reenters. These episodes allow additional opportunities to observe separation anxiety and stranger anxiety, respectively. The infant is reunited with the mother in the final episode.

Although anxieties are not normally considered positive, you can see from this description that separation anxiety and stranger anxiety both signify that the infant has formed a special emotional attachment to a specific other person. It is the mother, not the stranger, who provides the security the infant needs to feel comfortable in the new setting. The loss of this security is evident when the mother leaves. Wariness of the stranger and preference for the mother both indicate what Ainsworth termed secure attachment. The most reliable indicator of secure attachment, however, is the way in which the infant responds when the mother returns to the room: Securely attached infants seek contact with the mother, cling tightly, and allow the mother to soothe and comfort them. Of the thousands of infants and parents observed by Ainsworth and other U.S. researchers in the Strange Situation procedure, approximately 62 percent show secure attachment (Thompson, 2006). But what about the other 38 percent?
Insecure Attachments. Ainsworth identified two patterns of insecure attachment. With insecure–avoidant attachment, seen in approximately 15 percent of infants studied in the United States, infants do not seem to use the mother as a secure base. When the stranger enters, these infants do not show a special preference for their mother; they might go directly to the stranger or play with the stranger without first needing to cling to the mother. When the mother leaves, these infants seem undisturbed. They might continue playing rather than going to the door and fussing. When the mother reenters, these infants turn away, ignore her, or avoid her. There is debate about how to interpret this pattern of behavior (Thompson, 1998). Are the infants actively avoiding contact with a parent who has rebuffed them in the past, or are they merely uninterested because they have not developed a special bond?

Insecure–resistant attachment is seen in about 8 percent of infants (Thompson, 2006). These infants usually seek the proximity of their mother, but they do not seem to gain comfort from the contact. Some show exaggerated stranger and separation anxiety or a strong need to stay close to the parent. But when the mother picks the baby up, some of these infants fight off her efforts to provide comfort, often showing signs of anger or heightened distress. Others seem passive when their mothers try to console them. Some researchers label this category insecure–ambivalent attachment, because the infant seeks proximity but then shows ambivalence about contact with the caregiver.

More recently, researchers have added a fourth category called insecure–disorganized (or disoriented) attachment, seen in nearly 15 percent of infants who have been tested (Main & Solomon, 1986, 1990; Thompson, 2006). These infants seem confused or dazed, or they might show contradictory behaviors. They might be calm one moment and angry the next. They might remain motionless or might show apprehension as their parent approaches. Their behaviors are not consistently avoidant or resistant, so they do not fall neatly into either of those classifications of insecure attachment. Table 6.2 summarizes the types of attachment that Mary Ainsworth and other researchers have identified.

Other researchers have questioned whether infant–parent attachments should be classified into separate categories at all (Fraley & Spieker, 2003). They note that infants vary so much within these four attachment categories that it might be more informative to rate them all on two continuous scales: degree of avoidance of the

| TABLE 6.2 Different Types of Attachment Identified in the Strange Situation |
|-----------------------------|---------------------------------------------------------------|
| TYPE OF ATTACHMENT          | BEHAVIORS                                                     |
| Secure                     | • Baby uses mother as safe base for exploring unfamiliar room. |
|                            | • Baby prefers mother over stranger.                          |
|                            | • Baby might show distress when separated from mother.        |
|                            | • Baby seeks proximity and contact with mother on reunion.    |
| Insecure–avoidant          | • Baby does not prefer mother over stranger.                  |
|                            | • Baby avoids contact with mother by turning or looking away.  |
| Insecure–resistant         | • Baby shows ambivalent approach–resist behavior: seeks proximity with mother but then resists contact. |
|                            | • Baby does not avoid mother.                                 |
|                            | • Some infants show anger; others are passive.                |
| Insecure–disorganized/disoriented | • Babies seem confused or dazed or may show contradictory behaviors. |
|                             | • Babies may be calm, then angry.                             |
|                             | • Babies may be motionless or show apprehension.              |
|                             | • Behaviors are not consistently avoidant or resistant as in other categories. |
parent and degree of hostility or resistance. In the future, research will show whether this strategy, or some other, provides a better description of the different types or degrees of attachment shown by infants and parents.

**Parent, Infant, and Cultural Factors in Attachment**

What causes these different types of attachments to develop? Parent, infant, and cultural factors all are involved.

**Parent Factors.** According to Ainsworth, it’s the quality of the parenting during the first year of life that determines the type of attachment that is formed. Through extensive observation of mother–infant behaviors in the home environment, Ainsworth and others found that secure attachment relationships tend to be associated with mothers who respond positively, consistently, and warmly to their infants (Ainsworth, 1973; Ainsworth et al., 1978; Thompson, 2006). They hold their babies frequently, tenderly, and for long enough that the infants seem satisfied when they are put back down. When Ainsworth (1973) observed families in their homes, she found that securely attached infants showed very little distress when their mothers left the room briefly. They seemed conscious of their mothers’ whereabouts and confident that the mothers would soon return. This was in contrast to the babies’ behavior in the Strange Situation: These same infants showed separation distress when their mothers left them in the unfamiliar laboratory setting. During reunion episodes, securely attached infants gain considerable comfort by being held by their mothers. This response is consistent with Bowlby’s view that maternal sensitivity would be most important when an infant was distressed, afraid, or anxious. Cross-culturally, maternal sensitivity was related to infant security in a study of families in the United States and in Bogota, Colombia (Posada et al., 2002; Posada et al., 2004).

A particularly important characteristic of secure attachments is the mother’s sensitivity to the calls and signals of her baby. These mothers respond quickly when their infants cry or call out. They are not worried that their attention will “spoil” the baby. But it is more than just responding quickly and positively. These mothers show **sensitive responsiveness**—they see things from the baby’s point of view and adjust their responses to meet the infant’s needs. Consider a 1-year-old who opens a book, points to a balloon, and says “dat.” The caregiver responds by smiling and saying, “Yes, that’s a balloon, and here’s another one.” The caregiver has noticed the infant’s signal and has responded to it by allowing the infant to initiate a game of pointing and naming. Contrast this to the caregiver who takes the book from the baby, turns to the beginning, and proceeds to read the book the “right” way. Which caregiver has shown sensitive responsiveness? Healthy attachments are facilitated when caregivers go along with the games, interactions, and other activities that their infants initiate. They adjust their babies’ feeding and sleep schedules according to the signals and rhythms of the baby, and they otherwise show sensitivity toward the baby’s perspective. With secure attachments, the relationship is mutual rather than being completely dominated by the caregiver.

On the basis of her home observations, Ainsworth (1973) believed that indifferent parenting led to insecure–avoidant attachments and that inconsistent parenting led to insecure–resistant (or ambivalent) relationships. Other researchers, however, have produced evidence that avoidant attachments arise more from parenting that is intrusive, overstimulating, or even hostile and that resistant attachments develop when care is unresponsive (Egeland & Farber, 1984; Isabella, 1995; Isabella & Belsky, 1991; Isabella et al., 1989; Lyons-Ruth et al., 1987). These researchers describe mothers of insecure–avoidant infants as being tense and irritable, showing little interest in their infants, handling them in a mechanical fashion, failing to adjust
feedings to the baby’s pace, being less responsive to infants’ cries and calls, and otherwise reacting to motherhood in a resentful or negative way. Whether avoidant or resistant, insecurely attached infants learn that their caregivers will not respond sensitively to their needs. Thus, in times of stress, they might reject their parents’ attempts to comfort them by looking away or by showing anger and frustration.

Insecure-disorganized (or disoriented) attachments have been associated with parenting that is abusive and/or with parents who themselves have suffered childhood traumas, have unresolved difficulties with their own parents, or are still mourning the death of their attachment figure (Main & Hesse, 1990; Main & Solomon, 1990). Infants who have been frightened by their parents might be confused about how to respond when they are in a stressful situation. They might also be fearful of how their parents will respond under stress. Can they use their parent as a safe base of security, or will their parent be dangerous? You can understand how an infant might respond in contradictory ways, such as approaching the parent but also covering. Or an infant might freeze, immobilized by the dilemma. In less severe cases, disorganized/disoriented attachment behavior can occur when parents display anxiety or send conflicting signals to their infants.

**Infant Factors.** Attachment is a two-way relationship, and factors associated with infants themselves also can contribute to their security and insecurity. Infants who become securely attached tend to cry less frequently, greet their mothers more positively, and initiate more bodily contact with their mothers (Ainsworth et al., 1978). Conversely, infants with insecure attachments tend to cry more, often show anger, and show disruptions in bodily contact. Are these differences due to the infant or due to the parenting? Do securely attached infants cry less because their mothers respond more sensitively to them, or do the mothers respond more sensitively because their babies are more pleasant and congenial? It is difficult to determine the cause–effect relationships among these correlational associations. It has been found that insecure-disorganized attachments occur at a higher rate among infants with special needs, such as those with high-risk prematurity, Down syndrome, autism, and physical disabilities (Thompson, 1998; van IJzendoorn et al., 1992). There is also evidence that insecure-resistant infants, in particular, are less alert and active from birth and are more likely to show mental and motor delays throughout infancy (Egeland & Farber, 1984). Infants who are highly irritable are more likely to develop insecure attachments, but only when their mothers receive low levels of social support (Belsky & Isabella, 1988; Egeland & Farber, 1984). Other research suggests that shy infants are at a slightly higher risk for insecure-resistant attachments, while infants who are more active are more likely to show avoidant attachments (Shamir-Essakow et al., 2004). Otherwise, the basic personality or temperament of the infant is not a strong predictor of attachment outcome (Goldsmith & Alansky, 1987; Thompson, 1998). We will return to the issue of temperament later in this chapter.

**Cultural Factors.** Beyond the infant and parent, the values of the larger culture influence parental expectations and behaviors. Table 6.3 shows attachment classifications from the United States and seven other nations. Researchers observed infants in the Strange Situation, in most cases between 11 and 22 months of age. The newer category of insecure-disorganized/disoriented attachment does not appear in the table because most of the studies cited did not include it. You can see that Great Britain and Sweden registered the highest percentages of secure attachments. Chile and Germany showed the lowest national percentages, although the majority of infants observed in both countries were still securely attached. More variability is seen with insecure attachments. In the European countries (Great Britain, Sweden,
nearly all of the insecure infants were classified as avoidant, and very few were classified as resistant. The reverse pattern occurred in Japan and Israel. Insecure infants in Chile were evenly divided between the avoidant and resistant categories.

What cultural factors might underlie these international differences? Japanese culture encourages close physical contact and intimacy between infants and mothers, and Japanese parents rarely leave their infants alone, especially when strangers are present (Takahashi, 1986). Similarly, Israeli infants, particularly those who live in communal kibbutz arrangements, are accustomed to close-knit relations and less experience with strangers and separation. When Japanese or Israeli infants encounter the Strange Situation, many show high levels of distress—sometimes to the point at which the researchers need to curtail the separation episodes. In the Strange Situation procedure, infants with high levels of distress level are classified with insecure–resistant attachment. In contrast, German culture stresses early independence in young children (Grossmann et al., 1981; Thompson, 1998). German infants learn that their mothers expect independence, so these infants might be less likely to seek proximity to their mothers in stressful situations. Remember that if infants ignore or avoid contact with their parents in the Strange Situation, they are typically classified as insecure–avoidant.

Within the United States, attachment patterns show socioeconomic and ethnic variability. Caucasian mothers tend to value independence and competence in infants and react more negatively to the clingy, dependent behavior that is typical of insecure–resistant infants (Harwood, 1992; Thompson, 1998). Other ethnic groups have somewhat different values. Puerto Rican mothers, for example, value familial love and respect and look most negatively on the independence shown by insecure–avoidant infants (Harwood, 1992). Many African Americans are raised in extended-family arrangements, in which caregiving is often shared among the mother, grandmother, aunts, sisters, and other relatives. Might these infants show less fear when their mothers leave? Parent–infant interactions also

<table>
<thead>
<tr>
<th>COUNTRY OR GROUP</th>
<th>NUMBER OF INFANTS SAMPLED</th>
<th>SECURE ATTACHMENT (PERCENTAGE)</th>
<th>INSECURE–AVOIDANT ATTACHMENT (PERCENTAGE)</th>
<th>INSECURE–RESISTANT ATTACHMENT (PERCENTAGE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great Britain</td>
<td>72</td>
<td>75</td>
<td>22</td>
<td>3</td>
</tr>
<tr>
<td>Sweden</td>
<td>51</td>
<td>74</td>
<td>22</td>
<td>4</td>
</tr>
<tr>
<td>Netherlands</td>
<td>115</td>
<td>68</td>
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<td>6</td>
</tr>
<tr>
<td>Germany</td>
<td>136</td>
<td>57</td>
<td>35</td>
<td>8</td>
</tr>
<tr>
<td>Japan</td>
<td>96</td>
<td>68</td>
<td>5</td>
<td>27</td>
</tr>
<tr>
<td>Israel</td>
<td>166</td>
<td>64</td>
<td>5</td>
<td>31</td>
</tr>
<tr>
<td>Chile</td>
<td>38</td>
<td>53</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>U.S.: General population</td>
<td>1,584</td>
<td>67</td>
<td>21</td>
<td>12</td>
</tr>
<tr>
<td>U.S.: Chinese Americans</td>
<td>36</td>
<td>50</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>U.S.: Low-income Hispanics in South Bronx</td>
<td>50</td>
<td>50</td>
<td>30</td>
<td>20</td>
</tr>
</tbody>
</table>

(Data for U.S. general population taken from a review by van IJzendoorn, Goldberg, Kroonenberg, & Frankel, 1992. All other data taken from Thompson, 1998.)
change in response to the environment in which the family lives. In urban communities where violence is pervasive, for example, some parents might be more restrictive with their children, allowing the children less independence and freedom to roam. In these situations, young children might be more afraid when their parents leave them and might display this fearfulness in the Strange Situation.

From this discussion, we hope you can see that environmental and cultural differences in parent–infant interactions influence behavior in the Strange Situation. Ainsworth originally developed her procedure with predominantly middle-class white American infants. Clearly, it is not always appropriate to use the typical behaviors of this group as a normative reference for categorizing infants who are being raised in other circumstances or cultures. Remember, we’re using the term mother when describing research that primarily investigated mother attachments, but we hope that fathers and other caregivers will recognize that their relationships follow a similar path.

Fathers, Day Care, and Attachment

Attachments with Fathers. Until now, we have focused mostly on infant–mother attachments. What about fathers? Summing up the data from 11 studies of attachments with both mothers and fathers, Fox, Kimmerly, and Schafer (1991) concluded that infants were just as likely to form secure attachments with fathers as with mothers. In fact, among the 710 infants studied, the percentages of secure versus insecure attachments were 65 percent versus 35 percent for fathers and 65 percent versus 35 percent for mothers. Furthermore, the type of infant attachment tended to be consistent from one parent to the other. That is, infants with secure attachments with their mothers tended also to have secure attachments with their fathers; infants with avoidant attachments with their mothers tended also to have avoidant attachments to their fathers; and so on. It is unclear whether this consistency is due to characteristics in the infant that produce a similar attachment with each parent or whether both parents respond in similar ways to the infant.

Recent evidence from a twin study suggests that similarities in father-infant attachment are determined more by the way the twins were fathered than by any genetic predispositions the twins may have shared (Bakersman-Kranenburg et al., 2004). It is clear that the fathering relationship is very important and that infants do reach beyond their relationships with their mothers. When fathers, older siblings, and other important people provide sensitive care for infants, infants begin to rely on them as a secure base for emotional support.

Day Care and Attachment. Many parents worry that their attachment relationships will suffer if they are not with their infants full-time during the early months. Some research conducted during the 1980s suggested that infants who spend more than 20 hours per week in day care centers, family day care homes, or other baby-sitting arrangements are slightly more likely to be insecurely attached to their mothers than are infants who receive more maternal care or are cared for full-time at home (e.g., Belsky & Rovine, 1988). In these studies, although the majority of infants in day care (even those who are in day care more than 20 hours a week) were still securely attached to their mothers, the percentages were significantly lower than for infants with mothers at home. More recently, a large-scale nationwide study found that time spent in day care added to the risk of insecure attachment only when it was combined with mothering that was less sensitive and responsive (NICHD Early Child Care Research Network, 1997, 2001). According to this research, day care in itself does not
Many families in the United States face a troublesome dilemma when a new baby is born. Does the mother leave her job to stay at home with the baby? If so, how does the family survive her loss of income? What if she also loses her family’s health insurance and other benefits? Will she be able to return to her job later, without penalty or loss of advancement? Or does the father leave his job, with all the same issues to consider? As you can imagine, this dilemma is especially acute for single mothers and in two-parent households in which neither parent makes a high wage. How do the parents do what is right for their new child without jeopardizing the family’s economic security?

When parents who work outside the home look for day care for their infants, they encounter additional trouble. There are very few licensed care arrangements for infants (and toddlers under 2 years of age) in this country. When a family can find care, it often costs a substantial portion of one parent’s wages. Many parents wonder whether it’s worth staying at work. But again, can they afford to quit or take substantial time off?

Almost all other industrialized nations have recognized their important role in supporting healthy families. No one benefits when infants are left in substandard care or when families must live in poverty to care for their own children. On average, nations in the European Union provide 36 weeks of paid leave to families with new babies (Kamerman, 2000). Most provide similar benefits for adoption. Typically, mothers receive 14 to 16 weeks of maternity leave, paid at a full or substantial rate. An additional 20 or 50 weeks’ leave for the mother (and sometimes for the father or for both parents) is available at a reduced rate of pay. Additional nonpaid time is usually available to one or both parents if they choose. While on leave, parents maintain their job security and full benefits.

Table 6.4 summarizes the family leave policies of several industrialized nations. Out of 29 of the world’s most developed nations, only the United States, Australia, and New Zealand have no paid leave benefits (Kamerman, 2000). In the United States, the Family and Medical Leave Act (FMLA) was signed into law in 1993. The FMLA requires employers that have 50 or more employees to provide up to 12 weeks of unpaid leave for the birth or adoption of a child or to care for other family members with serious medical conditions. Leaves are job protected. Employers may require, however, that accumulated sick leave or vacation time be used to cover some or all of the leave. Only about 55 percent of the U.S. workforce is covered by the FMLA (Kamerman, 2000). And although this statute pales in comparison to the provisions that are made in other nations, passage of the law still met considerable resistance. The impetus for the FMLA began in the 1970s but was not introduced in Congress until 1985. The law passed in Congress twice, in 1990 and 1991, but was vetoed both times by the president (Kamerman, 2000). Many employers were concerned that paid leaves would cripple their companies.

Should the care of young infants be left up to the operation of a free-market economy? Or if paid leave were to be provided, how should it be financed? Should all taxpayers contribute equally, or should employers shoulder most of the burden? What do you think is the best policy?
Early Attachment and Long-Term Outcomes

So far, we have seen that there is a link between the quality of infant attachment and the quality of care an infant receives during the first year of life. Although interesting, this research would be less important if the effects applied only to the first year. They do not. Alan Sroufe, a psychologist and researcher at the University of Minnesota, and his colleagues continue to report on a longitudinal study of a large group of families who were originally recruited in Minneapolis in the early 1970s (e.g., Elicker et al., 1992; Sroufe, 1990, 1996; Sroufe et al., 1993; Sroufe & Egeland, 1991; see also a review in Thompson, 1998). Researchers observed these families’ infants with their mothers in the Strange Situation when the infants were 12 and 18 months of age. During the preschool years, teachers and observers rated children who had been securely attached as infants as happier and more socially skilled, competent, compliant, and empathetic than were children who were insecurely attached as infants. Preschoolers with secure attachments also were more popular with their peers, had higher self-esteem, and were less dependent and negative. By age 10 years, children in the securely attached classification were still less dependent and received higher ratings on self-esteem, self-confidence, social skills, and emotional health. They made more friends than did children who had been insecurely attached as infants, and they spent more time with their friends. Adolescents who had been insecurely attached were somewhat more likely to experience psychological problems (Thompson, 1998).

TABLE 6.4  Family Leave Policies in Selected Countries

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>DURATION OF LEAVE</th>
<th>WAGE REPLACED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweden</td>
<td>1 year parental leave</td>
<td>80%</td>
</tr>
<tr>
<td></td>
<td>3 months’ additional leave</td>
<td>Flat rate</td>
</tr>
<tr>
<td></td>
<td>3 more months</td>
<td>Unpaid</td>
</tr>
<tr>
<td>Norway</td>
<td>42 weeks’ parental leave</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Parental leave until child is 2 years old</td>
<td>Unpaid</td>
</tr>
<tr>
<td>Portugal</td>
<td>6 months’ maternity leave</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>24 months’ additional parental leave</td>
<td>Unpaid</td>
</tr>
<tr>
<td>Poland</td>
<td>16–18 weeks’ maternity leave</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>24 months’ additional leave</td>
<td>Flat rate</td>
</tr>
<tr>
<td>Spain</td>
<td>16 weeks’ maternity leave</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Parental leave until child is 3 years old</td>
<td>Unpaid</td>
</tr>
<tr>
<td>Netherlands</td>
<td>16 weeks’ maternity leave</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>6 months’ additional leave per parent</td>
<td>Unpaid</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>16 weeks’ maternity leave</td>
<td>100%</td>
</tr>
<tr>
<td>Mexico</td>
<td>12 weeks’ maternity leave</td>
<td>100%</td>
</tr>
<tr>
<td>Turkey</td>
<td>12 weeks’ maternity leave</td>
<td>Two thirds</td>
</tr>
<tr>
<td>Great Britain</td>
<td>6 weeks’ maternity leave</td>
<td>90%</td>
</tr>
<tr>
<td></td>
<td>12 weeks’ additional maternity leave</td>
<td>Flat rate</td>
</tr>
<tr>
<td></td>
<td>13 weeks’ parental leave</td>
<td>Unpaid</td>
</tr>
<tr>
<td>New Zealand</td>
<td>52 weeks’ parental leave</td>
<td>Unpaid</td>
</tr>
<tr>
<td>United States</td>
<td>12 weeks’ parental leave</td>
<td>Unpaid</td>
</tr>
</tbody>
</table>

(Adapted from S. B. Kamerman, 2000.)
How do these long-term attachment effects work? According to Sroufe, human beings internalize the significant relationships that they have early in life and use those early experiences as interpretive filters when they develop later relationships. People come to expect others to interact with them in a way that mirrors their early attachment relationships. Securely attached infants, therefore, grow up to seek and expect others to be supportive and positive, and they behave in ways that elicit these qualities in people around them. Insecurely attached infants, however, might later expect and provoke hostility, ambivalence, or rejection in their relationships.

Michael Lamb, a child development researcher at the National Institute of Child Health and Development, provides a slightly different explanation (Lamb, 1987; Lamb et al., 1985). Lamb emphasizes the role of continuities in parenting. In other words, parents who foster secure attachments with their infants often remain sensitive, positive, and supportive through their children’s preschool, middle-childhood, and even adolescent years. Warm parenting during childhood might be more important than first-year attachment in helping children to maintain positive behavioral, social, and personality characteristics in later years. Support for Lamb’s position comes from research showing that early attachment categories do not necessarily correlate with later outcomes if characteristics of the family interactions change. Divorce, illness, and other negative circumstances can disrupt relationships even when children were securely attached as infants. Conversely, insecurely attached infants can benefit from later improvements in the quality of their care. Although the quality of the initial attachment is important in getting the infant off to a good start, it is clear that the quality and consistency of parental care after infancy also play an important role (Thompson, 2006).

Other Measures of Attachment

Ainsworth’s Strange Situation procedure is a valuable tool for assessing attachment relationships in infants, and modified versions have been developed to measure attachments with toddlers and young children (Main & Cassidy, 1988; Moss et al., 2004; Moss et al., 2004). However, the most frequently used alternative to measuring attachment is the Attachment Q-Sort (AQS) method (Waters & Deane, 1985). The AQS can be used with children ages 12 months to 5 years. Parents, teachers, or other adults who have had a chance to observe the child are asked to sort through a stack of 90 cards. On each card is a short behavioral description, such as “acts to maintain social interaction.” The adult places each card on one of nine piles ranked according to how well the descriptions fit the child—from most accurately to least accurately. Each card then gets a score based on the pile to which it was assigned.

Score patterns, when compared to established profiles, provide measures of security, dependency, sociability, and social desirability in the child. Descriptions related to high scores in security include “greets adult spontaneously” and “actively solicits comforting from adult when distressed.” Low scores in security go with descriptions such as “expects adults will be unresponsive” and “does not solicit or enjoy affectionate physical contact with adult.” One drawback of the AQS is that it does not involve the direct observation of the child by an unbiased and objective observer but rather relies on the observations and judgments of adults who know the child. When adults are well trained in using the AQS, scores show a reasonable, though not perfect, convergence with security as measured in Ainsworth’s Strange Situation (Thompson, 1998; van Ijzendoorn et al., 2004; Vaughn & Waters, 1990).

Beginning with Bowlby and Harlow, attachment research has helped us understand the important link between caregiver behavior and child development. In the next section, we look at infant temperament, another characteristic that has received considerable attention from researchers who study parent–child interactions.
Let’s Review . . .

1. What is the main point of John Bowlby’s ethological theory of attachment?
   a. Infants are attached to the contact comfort they receive from their parents.
   b. Parents have to learn to love and nurture infants.
   c. Attachment behaviors have evolved over time to increase the chances of infant survival.
   d. Evolution has provided a system that causes parents to be attached to infants, but infants must learn to engage in behaviors that support the parents’ nurturing tendency.

2. In Ainsworth’s Strange Situation, infants who show stranger anxiety and separation anxiety are most likely to be classified as having:
   a. a secure attachment.
   b. an insecure–avoidant attachment.
   c. an insecure–disorganized/disoriented attachment.
   d. no attachment at all.

3. In which of the following cultures are infants expected to show the most independence from parents?

4. True or False: Compared to other infants, infants with secure attachments with their parents tend to grow up to be preschool children who are happier, more competent, and popular with their peers.

5. True or False: The Attachment Q-Sort (AQS) uses direct observation of infant behaviors to sort infants into secure, avoidant, and resistant categories.

Answers: 1. c, 2. a, 3. c, 4. T, 5. F

Temperament

When our nonidentical twin girls were about 6 months old, our good friends Steve and Sue volunteered to baby-sit one evening to give us a much-needed break. After about 2 hours of quiet dinner and conversation, we returned home to an interesting sight. One of the twins, Lily, was playing on the couch with Steve and Sue. She was bouncing on their laps, giggling, and generally enjoying the attention that was being heaped on her by two loving adults. The other twin, Rachel, was gently rocking back and forth in an infant swing, but the swing was facing the wall.

Although our friends had visited several times before, Rachel was still not comfortable interacting with them without her parents around. She had become upset and cried for quite some time after we left. Our friends are very knowledgeable and experienced with parenting and children. After trying all the standard techniques to comfort Rachel, they came up with a resourceful and effective solution. They settled her in the swing (a familiar and comforting place), turned the swing so that Rachel couldn’t see these less-familiar adults, and coached our 7-year-old son (Rachel’s familiar and comforting older brother) in playing with her. It worked. By the time we got home, Rachel wasn’t crying—though she seemed quite glad to see us when we walked in.

How can the extremely different reactions shown by our twin girls be explained? As recently as the 1970s, many child development theorists thought that infants entered the world as “blank slates” and that most of their behaviors and reactions were the result of parenting and other experiences (Foreman, 1995). Had we really
treated our daughters so differently in their first few months? That is unlikely. Anyone who has spent considerable time with infants or toddlers recognizes that babies come into the world with their own behavioral styles or dispositions. Some are more sociable and outgoing and smile frequently. Others are more shy, afraid, or reluctant to engage in new situations. Today, researchers refer to the infant and child’s behavioral style, or primary pattern of reacting to the environment, as temperament. In this section, we describe the most widely accepted classifications of temperament and discuss the practical reasons to understand this important characteristic.

As you study this section, ask yourself these questions:
- What are the behavioral dimensions that indicate a person’s temperament?
- What main temperamental styles have researchers identified?
- How do different temperaments form? To what extent do nature and nurture influence temperament?

Types of Temperaments

The most widely accepted method of classifying temperaments is the system developed by two psychiatrists, Alexander Thomas and Stella Chess (Chess & Thomas, 1995; Thomas & Chess, 1977). In 1956, Thomas and Chess began an extensive longitudinal study with 141 children from 85 New York families. Later, they added several hundred children of working-class Puerto Rican parents and children who had been born prematurely or with physical, neurological, or intellectual disabilities. The study has followed most of these children well into adulthood. On the basis of detailed interviews with the parents, Thomas and Chess identified nine temperament dimensions that seemed to capture the diverse behavior patterns exhibited among the infants, as shown in Table 6.5. A child can receive a high, medium, or low score on each dimension. Together, the scores create a profile of the child’s primary pattern of reacting to the environment.

### TABLE 6.5 Nine Temperament Dimensions

<table>
<thead>
<tr>
<th>TEMPERAMENT DIMENSION</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Activity Level</td>
<td>Degree of motor activity during daily activities such as bathing, eating, playing, and dressing: How active is the infant?</td>
</tr>
<tr>
<td>2. Rhythmicity</td>
<td>Degree of predictability/unpredictability in sleep, feeding, elimination, and other schedules: How predictable and regular are the infant’s schedules?</td>
</tr>
<tr>
<td>3. Approach or Withdrawal</td>
<td>Degree of positive or negative response to a new stimulus: When the infant is presented with a new person, situation, or toy, how positive or negative is the infant’s first response?</td>
</tr>
<tr>
<td>4. Adaptability</td>
<td>Ease with which infant modifies his or her responses in a desirable way when confronted with new or changing situations: How well does the infant adapt to change?</td>
</tr>
<tr>
<td>5. Threshold of Responsiveness</td>
<td>Intensity level of stimulation that is needed to cause a response: How strong does the new situation need to be to cause a change in the infant’s behavior?</td>
</tr>
<tr>
<td>6. Intensity of Reaction</td>
<td>Energy level of the response: How intense is the infant’s response?</td>
</tr>
<tr>
<td>7. Quality of Mood</td>
<td>Amount of pleasant or unpleasant response: How joyful or friendly is the infant’s response?</td>
</tr>
<tr>
<td>8. Distractibility</td>
<td>Degree to which environmental stimuli interfere with ongoing behavior: How distracted is the infant?</td>
</tr>
<tr>
<td>9. Attention Span and Persistence</td>
<td>Degree to which the infant pursues and continues an activity, even in the face of obstacles: How long does the infant continue activities; how well does the infant overcome obstacles in continuing activities?</td>
</tr>
</tbody>
</table>

(Thomas & Chess, 1977)
Chapter 6. Socioemotional Development in Infants and Toddlers

Using the nine dimensions, Thomas and Chess (1977) identified three constellations of temperament that are particularly significant:

■ The easy temperament is displayed when the child is primarily positive, smiles easily, has a positive and flexible approach to new situations, adapts to change, and quickly develops regular patterns of eating and sleeping.

■ The difficult temperament exists when a child is frequently negative and easily frustrated, withdraws from new situations, is slow to adapt to change, and shows irregular patterns of eating and sleeping.

■ The slow-to-warm-up temperament is shown when a child has mildly negative responses to new stimuli and situations but with repeated exposure gradually develops a quiet and positive interest. Compared to children with a difficult temperament, these children have less intense emotional reactions and more regular eating and sleeping schedules.

In Thomas and Chess’s original longitudinal sample, 40 percent of the children were “easy,” 10 percent were “difficult,” and 15 percent were “slow to warm up.” The remaining 35 percent did not fall neatly into any of these three categories, instead showing their own constellations of temperament dimensions. In some cases, a particular dimension—such as an extremely high activity level, high distractibility, or poor attention span—dominated a child’s temperament.

How Do Different Temperaments Form? What shapes temperament? Thomas and Chess (1977) proposed an interactionist model that emphasizes the complementary forces of nature and nurture. As we saw in Chapter 2, behavior geneticists have come up with moderately high heritability estimates for temperament and personality. For example, heritability estimates range from about 0.44 to 0.70 for traits such as anxiety, sociability, activity level, emotionality, task orientation, and control (see Table 2.4 in Chapter 2). This means that 44 to 70 percent of the variation in these traits across the population is related to genetics—a substantial contribution. So infants are born with innate tendencies that can be reinforced, channeled, or frustrated by parents, the family, and the larger environment. For example, one family might see a child with a high activity level as “trouble,” whereas another family might label such a child “vigorous.” With warm and supportive parenting, an active child might learn self-control; harsh and punitive parenting, however, might lead such a child toward aggression (Rubin et al., 2003). This adaptation goes both ways: Parents adapt to the activity level of the child, and the child adapts to the parents’ expectations and constraints. Also recall from Chapter 2 that the philosophical orientation of a whole society could have a relationship to the predominant temperament expressed in that particular gene pool (Kagan et al., 1993; Kagan et al., 1994). The emphasis on

As all parents quickly learn, some infants are more easygoing and peaceful, while others are easily frustrated and difficult. Researchers believe that infants are born with a basic temperament—a style of reacting to new situations and stimuli.
serenity and harmony in Asian cultures, for example, might be an expression of a predominant temperament that in turn influences how parents and society treat children. Nature and nurture interact to facilitate some characteristics of temperament and suppress others. “It is a constantly evolving dynamic, as the child and family and society change over time” (Thomas & Chess, 1977, p. 68).

**Goodness of Fit.** As children mature, the key factor in their developmental outcomes will be what Thomas and Chess call the **goodness of fit** between their temperaments and their environments (Chess & Thomas, 1995). Healthy development occurs when a child and his or her environment are compatible. Highly active children, for example, will fare better when their parents are on the outgoing side and value physical activity. Conversely, a poor fit can impair development. Parents who are more reserved might not respond well to highly active children, and slow-to-warm-up children might not adapt well with parents who tend to rush them into new situations. When incompatibilities are severe, behavior disorders can emerge in the child (Chess & Thomas, 1995). Characteristics of the child and parent don’t necessarily need to match to provide a good fit, however. Sometimes, good fits are complementary, as when a highly reactive child benefits from the calming influence of parents who are reflective, flexible, and patient. Good fits are important outside the family as well. Compatibility with peers, teachers, coworkers, and spouses becomes important as the child grows into adolescence and adulthood. Further, one culture might approve of active and assertive children, whereas another might view such children as rude and disrespectful.

To see how one parent provided a good fit for her difficult child, read the Personal Perspective box entitled “Meet the Parent of a Difficult Child.”

**Consistency over Time.** Measures of temperament are not highly consistent over time. As with most other personality variables, numerous factors can influence temperament (or the behaviors that indicate temperament). With children in their longitudinal study, Thomas and Chess repeatedly collected measures on each of the nine temperament dimensions listed in Table 6.5. When comparing measures taken one year apart, the researchers found reliable correlations for six out of the nine dimensions. But only one dimension (threshold of responsiveness) showed a reliable correlation when measures were taken four years apart (Chess & Thomas, 1995). One reason for this variability is that the ways in which children express temperament can change over time. As children mature, they develop insight into their own temperaments and can use this self-awareness to adapt to their environments. One child might realize, “I’m shy, but I’m not a pushover.” She therefore might assert herself more in social situations. Another might recognize that “I’m excitable, but I know the warning signs” and therefore might show more self-control. In both cases, the child’s behavioral output might reveal their true internal temperament. In some ways, individuals’ temperaments change as they adapt to their environments, but in other ways, people learn to control how they express their temperaments. Both processes cause the outward measures of temperament to change across time.

**Other Approaches to Temperament**

Adding to Thomas and Chess’s classification system, in this section, we describe two other methods for measuring and thinking about temperament.

**Rothbart’s Temperament Dimensions for Infants and Children.** Mary Rothbart (1981) developed an instrument called the *Infant Behavior Questionnaire*, which asks parents to report the frequency of specific behaviors shown by their infants, ages 3 to 12 months. An advantage of this method of assessing temperament is that it
yields useful information quickly; it does not require extensive interviews. The questionnaire includes 96 items. One example is: “During the past week, when being undressed, how often did your baby smile or laugh?” Parents respond along a six-point scale that ranges from never to always. The original questionnaire scored six dimensions of temperament: activity level, smiling and laughter, fear, frustration, soothability, and duration of orienting. The revised version now scores 14 dimensions (Rothbart, 2001). If you compare these dimensions to the ones in Table 6.5, you’ll see that there is some overlap with the Thomas and Chess system. Among Rothbart’s dimensions, activity level and smiling and laughter show the greatest stability across the first year of life. The other dimensions show only minimal consistency over time. Rothbart developed other questionnaires to measure temperament in children from 18 months to 15 years of age and in adults (Rothbart, 2001; Rothbart et al., 1994).

Kagan’s Work with Shy Children. An aspect of temperament that has received considerable research attention is shyness. Longitudinal research conducted by Harvard University psychologist Jerome Kagan (1994, 1997) provides interesting insights about children who are extremely shy. In one study, Kagan presented 16-week-old infants with unfamiliar stimuli such as strong odors, unfamiliar voices, or brightly colored toys waved in front of their faces. About 20 percent of the infants reacted strongly, flailing their arms and legs or crying. By 1 to 2 years of age, one third of these reactive infants were very fearful in other laboratory situations, and by 4 years.
of age, they were very shy and inhibited. Furthermore, as adolescents, they were at increased risk for developing social phobia—an intense and irrational fear of social situations.

Kagan surmises that these children had a genetic predisposition to shyness. He points to the amygdala and the hypothalamus, two structures in the brain that process environmental changes and help to produce our emotional reactions to new stimulation. Children with low thresholds for arousal in these systems tend to react more strongly to unfamiliar stimuli (Kagan & Fox, 2006). It doesn’t take much stimulation to arouse fear states in these children. In the face of unfamiliar situations, their heart rates accelerate more than other children’s do. Even when they are asleep, these children still show higher heart rates than other children do (Kagan, Reznick, & Snidman, 1988). As they grow into childhood, shy children learn to back away from social situations and other events that are highly stimulating for them.

What about the other extreme? In Kagan’s study, about 40 percent of infants reacted calmly to unfamiliar odors, voices, and colored toys. They remained relatively still and were not distressed. Presumably, the new stimuli were not strong enough to arouse fear reactions in these infants—the infants had higher arousal thresholds. At 1 to 2 years of age, these children were not afraid of new laboratory situations, and as 4-year-olds, they tended to be sociable and talkative and smiled frequently. Kagan did warn, however, that children with extremely high arousal thresholds might seek intense or dangerous activities. In a small percentage of cases, this inclination might lead to problem behaviors, delinquency, or even violence (Kagan, 1997). Proper socialization and positive role models can help to steer such children away from thrill seeking with risk-prone peers or in dangerous circumstances.

This child is very shy. How might shyness be related to thresholds for arousal in the brain? How did shy children react to unfamiliar stimuli when they were infants?

Think About Erin . . .
If Patrick is very shy, what adjustments can Erin and his day care providers make to help Patrick cope with his new situation?

Let’s Review . . .

1. The most widely accepted system for classifying infant temperaments is the one developed by:

2. Healthy development occurs when there is compatibility between the child’s temperament and the surrounding environment. This statement summarizes the concept of:
   a. goodness of fit.   c. longitudinal consistency.
   b. genetic–environmental interaction.   d. the reaction range of temperament.

3. Jerome Kagan believes that extreme shyness in children can be traced to:
   a. fear and anxiety shown by parents in social situations.
   b. the punishments children receive from peers and parents.
   c. low thresholds for arousal in the limbic system and hypothalamus.
   d. a dysfunction in the pituitary gland that causes a lack of energy and enthusiasm.

4. True or False: Compared to children with difficult temperaments, children who are slow to warm up have less intense emotional reactions and more regular eating and sleeping schedules.

5. True or False: Surgency, negative affectivity, and duration of orienting are three of the dimensions that Thomas and Chess use to identify infant temperaments.

Answers: 1. d, 2. c, 4. T, 5. F

Part Two: Infants and Toddlers
Emotion

We began this chapter with a discussion of attachment—the first emotional relationship that infants form with their caregivers. In this section, we explore a few of the other topics researchers investigate in the realm of emotion, or feelings. How do infants and toddlers develop their ability to understand and express emotions? We look at the beginnings of emotional discrimination: the moment when, for example, infants are first able to see that happy faces look different from sad ones. We also explore what infants understand about the emotional expressions they see in people around them. As toddlers develop further, they become more aware of what other people expect of them, and they begin to compare themselves to these expectations; as a result, feelings of guilt, embarrassment, shame, and pride begin to emerge. We end this section by looking at how these more complex emotions emerge in toddlers.

As you study this section, ask yourself these questions:

■ What are some of the first emotional reactions of newborn infants?
■ When are infants able to tell different emotional expressions apart? How do adults know what kinds of information infants get from others’ emotional expressions?
■ When are children first able to feel guilt, embarrassment, shame, and pride?

Infant Responses to Emotions

Immediately after birth, newborn infants are responsive to certain emotional cues displayed by people around them. Visit any hospital nursery, and you will notice that when one newborn starts crying, they all start crying. This phenomenon is referred to as emotion contagion—the tendency of the emotional cues displayed by one individual to generate similar cues or emotional states in others. For newborns, some types of cries are more contagious than others. Newborns are more likely to cry when they hear other newborns cry than when they hear recordings of their own crying, of older infants’ cries, or of artificially produced crying sounds (Martin & Clark, 1982; Sagi & Hoffman, 1976; Simner, 1971).

Newborns also can produce facial expressions that mimic the expressions of adults who are displaying various emotions. In the photos in Figure 6.2, the young infant imitates the adult’s happy, sad, and surprised expressions remarkably well (Field et al., 1982). In one study, researchers asked mothers to make facial expressions and speak in ways that showed joy, sadness, and anger (Haviland & Lelwica, 1987). The mothers’ 10-week-old infants responded differently to each of these emotions. The infants showed more joy and interest when their mothers were joyful. They made “mouthing” movements when their mothers were sad. They showed less interest and less movement when their mothers showed anger. Other researchers have found that 2-month-olds respond differently to happy faces than to faces that show no emotion at all (Nelson & Horowitz, 1983) and that 5-month-olds can tell the differences among anger, sadness, and fear (Schwartz et al., 1985). Infants can discriminate among facial expressions at a young age; however, they seem to rely more on vocal expressions for determining emotions (Saarni et al., 1998).

Even if infants can tell different emotional expressions apart, do they understand what the different expressions mean? Evidence suggests that they do: Infants as young as 4 months of age can understand the basic emotions behind facial expressions, including joy, anger, surprise, and sadness (Montague & Walker-Andrews, 2001). By 12 months of age, the evidence is even clearer. Consider a clever study that used the visual cliff that we described in Chapter 5. The researchers placed 12-month-old infants on the shallow side of the cliff and put
an attractive toy at the other end of the deep side (Sorce et al., 1985). As infants approached the deep side, they looked up at their mothers, who had been instructed to show a joyful, interested, sad, angry, or fearful face. As Figure 6.3 shows, none of the infants crossed the deep side when the mothers showed fear. A few crossed when their mothers looked angry or sad, but many more crossed when the mothers appeared interested or joyful. These infants were doing more than just discriminating among various facial expressions: They were using the expressions to get information to guide their behavior. Trusting their mothers, they crossed the deep side when their mothers showed positive emotions, but they were reluctant or refused to cross when the mothers showed negative emotions. Still, keep in mind how difficult it is to know exactly what infants are understanding about emotional expressions. Are they really responding to the meaning in the expression (e.g., the joy or fear intended by the mother), or are they responding more to other aspects of the communication, such as the loudness of the mothers’ voices (Saarni et al., 2006)?

Emotions communicate important information about the environment, and infants learn at an early age to use their parents’ emotions as a guide in uncertain situations. Researchers refer to this as social referencing—the tendency of infants and children to look for emotional cues from parents and other caregivers to get information in uncertain situations (Thompson, 2006). When strangers approach, for example, infants often look to their parents for a cue. If the parent speaks to the stranger in a friendly manner, the infant reacts more positively to the stranger (Boccia & Campos, 1989; Feinman & Lewis, 1983). If the parent looks worried, the infant reacts more negatively. Similar interactions occur when infants are exposed to unfamiliar places and

**Figure 6.2 • Adult and Baby Facial Expressions** This newborn baby is imitating the facial expressions made by the adult model. Although they cannot see their own faces, newborns are capable of matching facial movements made by others.
toys (Crockenberg & Leerkes, 2004). One study showed that 12-month-old infants can even read the negative reactions of people they see on television (Mumme & Fernald, 2003). Researchers created a videotape of an actress viewing two objects (e.g., a bumpy ball and a garden hose connector). The actress showed a negative reaction to one of the objects—turning her head away, gasping, and showing a fearful facial expression. What did the infants do? They showed negative facial expressions when the actress did, and when given both objects to play with, infants avoided the one that the actress seemed to dislike. These and other studies demonstrate that by the time they reach their first birthdays, infants are capable of reading and understanding something about the emotions expressed by other people. So even before they understand a spoken language, infants are already receiving messages through the language of emotion.

Toddler Self-Conscious Emotions

By 15 months of age, self-conscious emotions begin to emerge (Lewis, 1993; Saarni et al., 2006). These are emotions related to people’s thoughts about themselves—about how their thoughts and behaviors relate to their images of who they are and who they should be. A toddler who spilled his juice looks down and away, feeling guilty about the mess he made. If his siblings or other children are watching, he might feel embarrassed by his mistake. If he makes frequent mistakes, he might feel shame, believing that he is a “bad boy.” If he pours his juice successfully, however, he might feel pride in his new accomplishment. By 15 months, he is comparing his own behavior to how he thinks he should behave, and his emotional reaction reflects this self-conscious comparison. For self-conscious emotions to emerge, the toddler must first have a sense of his own identity (who he is) and a sense of what others expect of him. As you will see in a later chapter, the self-conscious emotions become more complex as children’s sense of self and others continues to develop during the preschool and following years.

Figure 6.3 • Infants’ Readings of Facial Expressions

When 12-month-old infants were deciding whether to cross the deep side of the visual cliff, they relied on their mothers’ facial expressions. Infants did not cross when their mothers looked afraid, and infants were reluctant when mothers looked angry or sad. Most of the infants did cross when mothers looked interested or joyful. (Based on Sorce, Campos, & Kinnert, 1985.)

self-conscious emotions

Emotions that relate to people’s self-images or what people think about themselves; include shame, embarrassment, guilt, and pride.

“Oops. I made a mess!” Shame is a self-conscious emotion that emerges around 18 to 24 months of age. Children begin to reflect on who they are and who they should be.
Social Relations and Play

If you are like most students, your earliest memory of a friend probably dates back to when you were about 5 or 6 years old. The first foundations of friendship began much earlier, however—when you were a small baby. To finish this chapter, we explore the social interactions and forms of play for infants and toddlers.

As you study this section, ask yourself these questions:

- What are the first interactions that infants typically have with each other, and how do infants play?
- What are friendships based on during the toddler period? What should parents and other caregivers do to help toddlers with their interpersonal conflicts?
- What are the main themes in the play of toddlers?

Infant Social Interactions

By the age of only 2 months, infants show a special interest in other people their own size. When placed near each other, young infants show mutual gaze—they look intently at each other as if they are taking in all the information they can about this intriguing new peer (Eckerman, 1979; Fogel, 1979). They often express their excitement by flailing their arms and legs. By 6 months, infants interact with each other by babbling, smiling, and touching (Vandell et al., 1980). These are often the infants’ first social interactions that involve mutual activity with people other than their family members.
Not surprisingly, infants vary greatly in social responsiveness. Some infants initiate interactions with peers frequently; others do so only rarely. Differences in temperament, in parent–infant relationships, and in opportunities to practice social skills all contribute to this variability. When infants have more exposure to other infants their age, they show more frequency and skill in their social interactions than infants with less exposure to peers (Vandell & Wilson, 1982). By the end of the first year, infants play by imitating each other’s actions and by sharing and playing together with toys (Mueller & Silverman, 1989; Rubin et al., 1998).

Infant Sensorimotor Play

During the first year of life, play evolves mostly around the practice of sensory activity and the development of new motor actions. Researchers refer to this period of play as sensorimotor play, based on the sensorimotor stage in Piaget’s theory (refer back to Chapter 5). For the first few months, infants spend most of their awake time lying on their backs and looking around at the world. They seem to be soaking up their new environments by staring at objects and colors and listening intently to the various sounds around them. The first noticeable signs of play involve activities infants discover with their own bodies. After accidentally bringing his fist to his mouth, for example, an infant might work to repeat this action. When he succeeds, the repetitive motion becomes a game that he repeats for several minutes, smiling and squirming with glee at his new discovery. Spitting bubbles and kicking their feet are similar games that infants discover and playfully repeat.

By 3 months of age, infants can reach out and grasp small objects. Now the world of play expands from actions involving infants’ own bodies to interactions with objects in the world. Rattles, balls, pieces of cloth, and other small objects can now be grasped, mouthed, banged, and dropped. Infants repeat these playful actions as they develop new motor actions and explore new objects in their environments.

An interesting development occurs between the ages of 6 and 9 months. At 6 months infants usually treat all objects that are about the same size in the same way. Give a 6-month-old a spoon, for example, and the baby will bang the spoon on the table. If you then give the baby a ball, she will bang it, too, and will do the same with a rattle or a small doll (Hughes, 1999). At 6 months, babies incorporate every object into the action pattern they prefer at the moment (e.g., banging). At 9 months, however, infants pay more attention to the specific features of objects and begin treating objects differently (Hughes, 1999; Ruff, 1984). They bring the spoon to their mouth, throw the ball, shake the rattle, and hug the doll. Rather than forcing all objects into a fixed action pattern, 9-month-olds can adjust their play to fit the unique features of each object.

Infants appreciate having a variety of playthings with different shapes, sounds, textures, and actions. Toys that respond to babies’ actions are especially interesting. When babies realize that pushing a particular button produces an exciting sound or a flash of light, a smile of recognition spreads across their faces. They recognize that they are having an influence on their environment and that the environment is now responding to them. It is exciting for parents to watch their infants form these early connections, and the infants derive self-confidence and a general sense of self from the realization that they can influence the environment (Hughes, 1999). To read more about how toy manufacturers use their knowledge of infant and child development to design interesting and educational toys, see the Professional Perspective box entitled “Career Focus: Meet a Toy Company Executive.”
Susan Tice, B.A.
Parsippany, New Jersey
Public Relations Director and Product Manager for International Playthings, Inc. (http://www.intplay.com).

What does International Playthings, Inc. (IPI) do, and what is your role at the company?
IPI is one of the largest suppliers of specialty toys in North America. We make a wide variety of games, infant toys, preschool toys, dolls, educational toys, activity toys, and other playthings. I am the director of public relations and a product manager. I determine what products to submit to various toy testing programs to obtain product recognition and consumer awareness. I also make new product suggestions. I work closely with manufacturers and their factories to bring new product ideas to life.

How do toy manufacturers decide what kinds of toys to produce?
Multiple factors are involved, and it depends on the age of the child. We consider the child's developmental skills, the educational benefits, age appropriateness, and how unique or different our toy can be from similar products that are already in the marketplace.

What do you think infants and toddlers look for in toys?
Infants respond to toys that can stimulate one or more of their senses. Contrasting colors provide visual stimulation as well as a focal point for developing eyesight. Different materials provide tactile stimulation. Jingles, rattles, crinkle, and music provide auditory stimulation and so on. The product should not overstimulate the senses but should be able to provide multiple experiences. For example, an infant will focus on the toy and then touch it and then mouth it as she learns all she can about it using her senses.

I think toddlers look for toys that “do” more—products with a cause-and-effect reaction that lets them be in control. For instance, if a toy plays music, toddlers want to be the ones who do whatever is necessary to get the music to play. They are more mobile, so they enjoy toys that can go with them, such as a walker, ride-on toy, push toy, and so forth. A great toy at this age is a basic toy that allows the child's play pattern to imitate life that he sees every day, opening his imagination. This can be done with something as basic as a plush animal or a basic plastic car. Here again, the product needs to appeal to the child's initial senses.

How do you use child development research when designing new toys?
When we begin the design phase, we want to make sure the toy is appropriate for a child of a certain age. As a result, we need to keep in mind how children develop—what basic skills they possess, what skills they are in the process of developing, and how our toy can encourage these developing skills. It's also extremely important to be aware of a child's environment and exposure to society at that age so that our products can be themed appropriately.

What education or training does it take to work in your area?
You need a minimum of a four-year college degree. It's excellent if you have taken marketing classes and have an understanding of childhood development (perhaps taking some child psychology classes could help here). If you are looking to go more into the PR aspect, writing classes are a tremendous asset. As for design of the toy, you will work closely with an art department and/or designers who can turn your ideas into graphics that can be easily understood by factories. For this, studying graphic design is definitely the way to go. Finally, being familiar with how retail works is very important, so your summer job at a retail store can actually become something extremely useful for your career.

As you read through this interview, did you recognize how this toy executive used child development information in her role at the company? If you had a job like hers, what else would you like to know about child development?
Toddler Friends

After 1 year of age, emerging language and motor skills allow toddlers to interact in increasingly complex ways. They can seek each other out, follow each other around, and add verbal dialogue to their play. At the age of 2 years, coordinated imitation becomes much more frequent. Toddler playmates take turns imitating each other and—a new feature—become aware that they are being imitated (Eckerman, 1993; Rubin et al., 1998). Consider Josh and Jalen, two toddlers playing in a sandbox. Josh pours sand on his legs, and Jalen does the same. Josh throws sand at a toy, and Jalen copies again. Then Jalen throws sand straight up in the air, and Josh does too, both giggling and chuckling all the while. The fun in this toddler game is that each child knows that he is being imitated. Each act becomes an invitation for the other child to copy. This level of coordination rarely appears in children younger than 2 years of age (Eckerman, 1993).

Toddler interactions often evolve around games that children either repeat from prior experiences or create on the spot. Characteristically, these early games include taking turns, playing roles, and engaging in numerous repetitions of the game sequences (Ross, 1982). Common games are stacking and toppling blocks; throwing and catching; putting toys in a pail and pouring; requesting, receiving, and returning items; running and chasing; and climbing and jumping. These early interactions help children to acquire important social skills such as learning to play as equals, maintaining fun and interest for both players, and adapting to the characteristics of different playmates.

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Toddler Choose playmates based largely on convenience—on who is available for play and who has interesting toys or materials to play with. By 2 years of age, however, pairs of children begin to select each other as mutually preferred playmates (Vandell & Mueller, 1980). That is, although other familiar peers are available for play, these friends pair off and voluntarily choose to play more with each other than with other children. For most children, this is the first time that a relationship contains all of the qualities of a true friendship: It is voluntary, mutual, and close, and it persists over time.

In a longitudinal study, Howes (1988) followed toddlers for up to 3 years as they maintained friends, lost friends, and made new friends. Her observations suggest that children who are more successful at maintaining friendships tend to enter into peer play more easily and to be more cooperative in social pretend play. For example, they are more likely to join in when asked, “You be the baby and I’ll be the mommy, okay?” Children who were less successful in maintaining friendships showed less social skill and were more likely to be rebuffed by peers.

Toddler Conflicts

Anyone who has spent much time with toddlers knows that conflict is all too common. In one study, researchers paired up 2-year-old children who had never met before and allowed them to play together in several sessions that lasted 15 minutes each (Hay & Ross, 1982). After carefully analyzing videotapes of the play sessions, the researchers found that playmates averaged just over two instances of conflict for every 15-minute session. Most of the conflicts (84 percent) were struggles over toys. A few pairs of playmates had no conflicts, but one pair displayed 14 instances of protest, resistance, or retaliation in their 15 minutes of play. Other research suggests that children who are more socially outgoing tend to initiate more conflicts (Brown & Brownell, 1990).

Parents, child care workers, and others who work frequently with young children often need to help toddlers resolve their disputes. Lecturing and moralizing are usually ineffective, because toddlers have difficulty understanding abstract reasoning. The question “How do you think she feels?” is largely nonsensical for the average 2-year-old, who is motivated more by the concrete benefit of getting his or
her hands on a colored marker or a piece of candy. (In Chapter 8, we will describe the egocentric forms of thought that are typical for young children.) Distracting the toddlers with another attractive activity is a more practical way to resolve the dispute. Parents and caregivers can then gradually introduce moral reasoning and conflict resolution skills according to the cognitive and emotional maturity of the individual child.

Toddler Symbolic Play

As you saw in Chapter 5, a major change during the toddler period is the emergence of symbolic thinking—the ability to form mental representations of objects or events in the world. Symbolic thinking allows symbolic play, where children use make-believe and pretend to embellish the objects and actions in their play. Early symbols begin to emerge between 12 and 14 months as toddlers pretend to act out common activities. They might lie on the floor with a small blanket and pretend to go to sleep or use toy dishes to pretend to eat. By 2 to 3 years of age, toddlers pretend that an object is something else: A wooden block is a car, a spoon is an airplane, or the family cat is their baby. Still later, children integrate multiple objects and actions into dramatic play activities. Their bed becomes a castle, their pillow is a magic shield, and they engage in mythical duels with the Evil Knight of Doom (really a chair or their sister). Their play takes on all of the imagination allowed by their ever-expanding cognitive abilities.

Let’s Review . . .

1. Which appears earliest in development?
   a. Mutual gaze.
   b. Symbolic play.
   c. Reaching for toys.
   d. Coordinated imitation.

2. An interesting change occurs by 9 months of age in how infants play with toys. What is it?
   a. Infants begin to babble at their toys.
   b. Infants begin to treat all toys alike.
   c. Infants begin to treat different toys differently.
   d. Infants temporarily lose interest in toys and prefer to play with other people.

3. At 18 months of age, Lauren is pretending to cook on a toy stove. This type of pretend represents the beginning of:
   a. social play.
   b. mutual play.
   c. symbolic play.
   d. coordinated imitation.
Now that you have studied this chapter, you should be able to help Erin understand Patrick’s behavior on his first morning at day care. You should begin by explaining how Patrick’s reactions reveal his attachment to his mother. By clinging to his mother in his new environment and by showing both stranger and separation anxiety, Patrick is demonstrating that he is securely attached to a specific other person: his mother. This is a positive attribute and will have benefits for Patrick as he continues to grow. Erin can help by letting Patrick see her interact in a friendly manner with the staff, signaling to Patrick that they are safe.

You should also discuss with Erin the research on day care and attachment. Many parents worry that day care will disrupt their child’s attachment to them. Some research suggests that full-time day care can reduce attachment, but only if it is combined with parenting that is not sensitive or responsive. The majority of infants in day care still show secure attachments to their mothers, and Patrick’s attachment to Erin is even more likely to be secure if Erin is sensitive and responsive when she is caring for Patrick.

Erin should also consider Patrick’s temperament. On the basis of the few details that were provided in the opening vignette, it does not appear that Patrick is a difficult child. He might be slow to warm up; recall that he did eventually begin to play with toys and books when he visited the day care center’s open house. If Patrick is very shy, the day care staff should introduce him gradually to the busy schedule and activities of the day care center; doing what they can to reduce his level of arousal. Erin should also work to find a day care center that provides a good fit for Patrick’s temperament.

Erin did several things to try to help Patrick cope with the emotion of his first day. She took Patrick to the open house so that he could familiarize himself with the new setting, she spoke cheerfully about day care, and she comforted him as they entered the center. Although she herself was upset, she modeled good emotional control for Patrick. At Patrick’s age, convenience plays an important role in making friends—children tend to play with whomever is available on a regular basis. After a few days at the center, Patrick will likely find one or more children who will enjoy playing with him.

4. **True or False:** During the first three months of sensorimotor play, infants prefer activities that involve their own bodies such as kicking, waving their arms, or spitting bubbles.

5. **True or False:** Convenient availability is an important factor in determining which toddlers will play together and be friends.

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Chapter Review...

How do researchers define attachment? What are the two main roots of modern attachment research?
Attachment is an emotional tie to a specific person or people that endures across time and space. Modern attachment research is rooted in John Bowlby’s ethological theory and Harry Harlow’s research with rhesus monkeys. Bowlby theorized that attachment behaviors evolved to increase survivability in infants. He emphasized how smiles and other infant behaviors trigger a nurturing response in adults. He also proposed four stages of attachment: orientation without discrimination, orientation with discrimination, safe-base attachment, and goal-corrected partnerships. Harlow demonstrated that contact comfort, not feeding as psychoanalytic and behavioral theorists had proposed, was the critical ingredient in attachment formation. Harlow showed how infant monkeys use their attachment figures as a secure base when they are frightened.

How do researchers use Mary Ainsworth’s Strange Situation procedure to measure attachment relationships? What kinds of attachments does her procedure reveal?
In Ainsworth’s Strange Situation test, eight episodes systematically expose the infant to unfamiliar situations involving a stranger and separation from the caregiver. The episodes reveal secure attachments when infants prefer the caregiver over the stranger, show separation anxiety when the caregiver leaves, and show joy on reunion when the caregiver returns. Other patterns of behavior can reveal insecure—avoidant, insecure—resistant, and insecure—disorganized/disoriented attachments.

Describe the parent, infant, and cultural factors associated with differences in attachment.
Ainsworth believed that the key to an infant’s attachment style was the quality of the infant’s interaction with his or her caregiver in the first year of life. When parents are consistently positive and warm in their response and when they are sensitively responsive to the calls and signals of the baby, secure attachments tend to develop. Indifferent, unresponsive, inconsistent, and abusive parenting often correlates with insecure attachments. Insecure attachments also are more likely when infants have special needs, are highly irritable, cry more, or are less alert and active. The prevalence of the different types of insecure attachments varies considerably across nations. Researchers believe that these cross-cultural variations are due to differences in the treatment and expectations of infants.

What are the long-term correlates of secure and insecure attachments in infancy?
Infants who are securely attached tend to become preschoolers who are more well liked, happy, competent, compliant, and empathetic. Later in childhood, they tend to have higher self-esteem and self-confidence, and they are more sociable and more emotionally healthy. Adolescents who were insecurely attached during infancy tend to have more psychological problems. Early attachment relationships can become internalized models that people use to guide their social relationships throughout life. Continuities in parenting might also contribute to the correlations between early attachment and later development.

What other measures of attachment have researchers developed?
Modified versions of the Strange Situation have been developed to use with toddlers and young children. Also, the Attachment Q-Sort was developed to use with children aged 12 months to 5 years, but it is a more indirect method, relying on the observations and judgments of people who know the child.

How do researchers define temperament? What is the most popular system for classifying infant temperaments?
Temperament is an infant’s or child’s behavioral style or primary pattern of reacting to the environment. The most popular method of classifying temperaments is the system developed by Thomas and Chess, who identified three main temperaments (easy, difficult, and slow to warm up) based on nine dimensions of behavior. Thomas and Chess believed that different temperaments result from interactions between genetics, parenting, and culture. They also emphasized the importance of an environment that is a good fit for the temperament of the individual child.

What are some other prominent systems for classifying or understanding temperament?
Mary Rothbart’s revised Infant Behavior Questionnaire assesses infant temperament along 14 behavioral dimensions rated by parents. The original version scored 6 dimensions. Jerome Kagan observed infants who reacted strongly to unfamiliar stimuli. Later, these infants became children who were afraid in other laboratory situations and were very shy and inhibited. Kagan emphasized genetic and biological components involving the limbic system and hypothalamus, brain structures that
process changes and new stimulation. Low thresholds of arousal in these systems cause shyness, and high thresholds are related to thrill seeking.

Describe several aspects of emotional development during infancy.

Emotion contagion and imitation of facial expressions are examples of emotional expressivity in newborns. Newborns tend to cry when they hear other newborns cry (contagion), and they can mimic facial expressions posed by adults (imitation). By 2 months of age, infants can discriminate among various facial expressions and respond differently to them. One-year-olds can use their mothers’ facial expressions to gain information about how to respond in ambiguous situations.

What are self-conscious emotions, and when do they emerge?

Self-conscious emotions include guilt, embarrassment, shame, and pride. They appear at 2 years of age as toddlers begin to understand who they are and what other people expect of them.

What are the main trends in infant social interactions and play?

By 2 months of age, infants show mutual gaze—looking intently at other babies their size. By 6 months, they enjoy interacting with other babies by babbling, smiling, and touching. Infants engage in sensorimotor play—using their sensory systems and motor actions to interact with toys and other objects. During the first 3 months, infants try to repeat actions that involve their own bodies (e.g., kicking or spitting bubbles). By 3 months, they begin reaching out to grab and play with toys and other objects. By 9 months, they begin to play differently with different types of toys (e.g., shaking a rattle, squeezing a ball).

How do toddlers interact with friends, and how do they like to play?

By age 2 years, toddlers show coordinated imitation when they imitate each others’ actions. They enjoy activities and games that involve taking turns. They make friends mostly by convenience, playing mainly with whoever is readily available. By age 2, they also begin pairing up in mutual friendships. Conflicts are common among toddlers, and these are often best handled by distracting the children off into different activities. Toddlers enjoy the beginnings of symbolic play—using make-believe and pretending to embellish objects and activities.

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| temperament (204) | }
If you are using MyDevelopmentLab, you have access to an ebook version of this textbook, along with dozens of valuable resources per chapter—including video and audio clips, simulations and activities, self-assessments, practice tests, and other study materials. Here is a sampling of the resources available for this chapter.

**Explore**
Physiological, Evolutionary, and Cognitive Theories of Emotion

**Simulate**
Attachment Classifications in the Strange Situation

**Watch**
Contact Comfort
Attachment in Infants
Redefining Fatherhood

**Practice**
Attachment
Temperament
Emotion

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Infants and Toddlers: The First Years

Physical Development
With proper prenatal care, babies have the best chance at being born full-term and healthy. Infants are at risk for a variety of developmental problems when they are born prematurely, low in birth weight, or small for their gestational age. Experts recommend that infants receive breast milk for at least the first 12 months although that isn’t always possible. They grow at an incredible rate, and children have already reached half of their adult height by the time they are 2 years old. Their brains are also developing rapidly as they form connections within the intricate network of neurons, as brain fibers become myelinated, and as they begin to prune the complex web of synapses that proliferate in the brain. Right from birth, infants have an impressive ability to see and hear and to distinguish basic odors and flavors. Over the first year, infant reflexes have been replaced by voluntary muscle movements as infants have learned to sit up, crawl, and take their first steps. These forms of physical development pave the way for the cognitive and socioemotional advances we see during these first years.

Cognitive Development
Even young infants have surprisingly well-developed abilities to remember and integrate sensory information. They can recognize sounds they’ve heard—even if they heard them before birth! Even as newborns, infants prefer to look at the human face over many other kinds of objects. By 6 months of age they can match information across different senses. Infants build on these sensory and motor experiences and gradually become able to mentally represent things and people in their environment—a significant achievement because it allows toddlers to think about things in the past and future. Their actions on the world become more intentional as well, and by the age of 2 toddlers are doing things on purpose to achieve specific goals. The average infant begins using sounds to communicate during the first year, and speaks the first real words around 1 year. From then on, toddlers’ language proceeds at a phenomenal pace. It seems that humans are biologically predisposed to learn language, but the social interactions infants and toddlers have with those around them also help them as they learn words, grammar, and the social rules for using language.

Socioemotional Development
Over the first year, infants form a special emotional attachment to their parents and primary caregivers. They feel secure and comfortable when they are with their caregivers, and they show fear when they are separated from them or when strangers approach. Infant temperaments vary, and parents will find that some babies are easy to interact with while others are fussy and difficult or slow to warm up to new situations. Infants respond to other people’s emotions at an early age. They gaze intently at other infants even before they have the physical coordination to crawl over and play. As children exit the toddler years, they are already playing creatively, forming new friendships, displaying their unique temperaments, and showing continued effects of the attachments they have formed with their parents and other important caregivers. Together with their physical, cognitive, and socioemotional developments, these toddlers are ready to explore the wider world. They are ready to enter the phase of Early Childhood: the Playful Years.