

Next we look closely at infant-caregiver bonds, beginning with the overall “fit” between baby and caregiver. Then we focus specifically on three processes of social development: synchrony, attachment, and social referencing.

Goodness of Fit

Many studies show that the interaction between environmental influences and inherited traits shapes behavior, particularly in the first years of life. Whatever their child’s temperament, parents need to find a **goodness of fit**—that is, a temperament-adjustment that allows smooth infant-caregiver interaction. With a good fit, parents of difficult babies build a close relationship; parents of exuberant, curious infants learn to protect them from harm; parents of slow-to-warm-up toddlers give them time to adjust.

THE PARENTS’ ADJUSTMENT All the theories described in the preceding section stress the power of infant wishes, ideas, and needs. In the early months, it is up to parents to do most of the adjusting. This is evident in the example of Kevin and his infant daughter:

Kevin is a very active, outgoing person who loves to try new things. Today he takes his 11-month-old daughter, Tyra, to the park for the first time. Tyra is playing alone in the sandbox, when a group of toddlers joins her. At first, Tyra smiles and eagerly watches them play. But as the toddlers become more active and noisy, Tyra’s smiles turn quickly to tears.

She . . . reaches for Kevin, who picks her up and comforts her. But then Kevin goes a step further. After Tyra calms down, Kevin gently encourages her to play near the other children. He sits at her side, talking and playing with her. Soon Tyra is slowly creeping closer to the group of toddlers, curiously watching their moves.

[Lerner & Dombro, 2004, p. 42]

Tyra needed Kevin’s reassurance to allay her fears and encourage her to stay in the sandbox with the older children.

In general, anxious children (i.e., those who are high in the Big Five trait of neuroticism) are more affected by their parents’ responsiveness than are easygoing children (Pauli-Pott et al., 2004). Ineffective or harsh parenting combined with a negative temperament is likely to create an antisocial, destructive child (Cicchetti et al., 2007). Some children naturally cope with life’s challenges; others do not.

IT’S NOT ALL GENETIC In general, most developmentalists emphasize the interaction between inherited traits and parental behavior (Kagan & Fox, 2006). The discussion in Chapter 1 about the research on the MAOA gene and violence touched on this point: Parents must first understand their child and then provide guidance so that inborn traits are expressed constructively, not destructively. Thus, for example, a parent can help when “a shy child must control his or her fear and approach a stranger, and an impulsive child must constrain his or her desire and resist a temptation” (Derryberry et al., 2003, p. 1061).

Many developmentalists have long warned against blaming mothers for everything that goes wrong with their children. Now they caution against placing too much emphasis on genes, especially in infancy, because observations suggest that parenting style influences the

goodness of fit

A similarity of temperament and values that produces a smooth interaction between an individual and his or her social context, including family, school, and community.

ESPECIALLY FOR NURSES Parents come to you with their fussy 3-month-old. They say they have read that temperament is “fixed” before birth, and they are worried that their child will always be difficult. What do you tell them? (see response, page 141) →

Strolling in the Park These three British fathers are sharing a bonding experience that is valuable for both themselves and their infants.

OBSERVATION QUIZ

Which of these three carriages is best for encouraging language development? (see answer, page 141) →



GETTY IMAGES

infant's behavior as much as or more than temperament does (Roisman & Fraley, 2006). What is needed is an awareness that both nature and nurture are involved.

Remember that inborn temperament is evident in brain activity in the first weeks of life, and it influences behavior from childhood through old age (Kagan & Fox, 2006). It is a mistake to emphasize parental influence too much or too little; child-rearing practices and genetic inheritance are both influential in the shaping of infants' behavior.

Synchrony

Synchrony is a coordinated interaction between caregiver and infant, an exchange in which they respond to each other with split-second timing. Synchrony has been described as the meshing of a finely tuned machine (C. E. Snow, 1984), the emotional "attunement" of an improvised musical duet (Stern, 1985), and a smoothly flowing "waltz" (Barnard & Martell, 1995).

synchrony

A coordinated, rapid, and smooth exchange of responses between a caregiver and an infant.



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ROBERT W. GINN / ALAMY

Learning Emotions Infants respond to their parents' expressions and actions. If the moments shown here are typical, one young man will be happy and outgoing and the other will be sad and quiet.

OBSERVATION QUIZ

For the pair at the top, where are their feet? (see answer, page 142) →

IN THE FIRST FEW MONTHS Synchrony between infant and parent becomes more frequent and more elaborate as time goes on; a 6-month-old is a more responsive social partner than a 3-month-old (Feldman, 2007). Parents and infants average about an hour a day in face-to-face play, although variations are apparent from baby to baby, from time period to time period, and from culture to culture.

Detailed research in the United States reveals the mutuality of the interaction: Adults rarely smile at newborns until the infants smile at them, at which point adults grin broadly and talk animatedly (Lavelli & Fogel, 2005). The elation that adults feel when their own infant smiles at them is evident not only in the adults' smiles but also in their brain activity, according to brain scans of 28 mothers looking at photos of their babies and of other babies the same age (Strathearn et al., 2008).

Each baby has a unique temperament and style, and parents learn to be sensitive to their particular infant (Feldman & Eidelman, 2005). Through synchrony, infants learn to read others' emotions and to develop the skills of social interaction, such as taking turns and paying attention.

Although infants imitate adults, synchrony usually begins with parents imitating infants (Lavelli & Fogel, 2005). When parents detect an emotion from an infant's facial expressions and body motions and then respond, the infant learns to connect an internal state with an external expression (Rochat, 2001). Such sensitive parenting is particularly apparent in Asian cultures, which place a high value on interpersonal sensitivity (Morelli & Rothbaum, 2007).

To see how synchrony develops, suppose that an infant is unhappy. An adult who mirrors the distress and then tries to solve the problem will teach that unhappiness is a valid emotion that can be relieved. An adult who always reacts to unhappiness by feeding the infant teaches the destructive lesson that food is the only source of comfort. But if an adult's response is more nuanced (differentiating hunger, pain, boredom, or fear and responding appropriately to each), then the infant will learn that there are varied reasons for unhappiness and many ways of responding.

WHEN SYNCHRONY DISAPPEARS Is synchrony needed for normal development? If no one plays with an infant, how will that infant develop? Experiments using the **still-face technique** have addressed these questions (Tronick, 1989; Tronick & Weinberg, 1997). An infant is placed facing his or her mother, who plays with the baby while two video cameras record each partner's reactions.

Frame-by-frame analysis typically reveals that mothers synchronize their responses to the infants' movements, usually with exaggerated tone and expression, and the babies reciprocate with smiles and waving arms. Then, in the still-face experiments, the mother erases all facial expression and stares with a "still face" for a minute or two. Sometimes by 2 months, and clearly by 6 months, babies are very upset by the still face.

This experiment has been done with mothers, fathers, and strangers. The babies are upset by the still face no matter who their partner is, but they are especially upset if their parents stop reacting. Many signs of stress are evident: Babies frown, fuss, drool, look away, kick, cry, or suck their fingers.

Interestingly, infants are much more upset when the parent presents a still face to them than when a parent leaves the room for a minute or two (Rochat, 2001). From a psychological perspective, this reaction is healthy: It shows that "by 2 to 3 months of age, infants have begun to expect that people will respond positively to their initiatives" (R. A. Thompson, 2006, p. 29).

Many research studies lead to the same conclusion: A parent's responsiveness to an infant aids development, measured not only psychosocially but also biologically—by heart rate, weight gain, and brain maturation (Moore & Calkins, 2004). Much depends on the particular parent. Some rarely play with their infants, which slows down development (A. C. Huston & Aronson, 2005). Infants' brains need social interaction—an essential, expected stimulant—to develop to their fullest.

Attachment

Toward the end of the first year, face-to-face play almost disappears. Once infants can move around and explore, they are no longer content to stay in one spot and follow an adult's facial expressions and vocalizations. Remember that, at about 12 months, most infants have begun to walk and talk, so the rhythms of their social interaction change (Jaffee et al., 2001). At this time another connection, called *attachment*, overtakes synchrony.

Attachment is a lasting emotional bond that one person has with another. Attachments begin to form in early infancy, are evident by 8 months, solidify by age 1, and influence a person's close relationships throughout life (see Table 4.3). In fact, attachment theory holds that adults' attachment to their parents, formed decades earlier in childhood, affects how they act with their own children. Babies learn how to relate to people, and those lessons echo lifelong (Grossmann et al., 2005; Kline, 2008; Sroufe et al., 2005).

When two people are attached, they respond to each other through *proximity-seeking behaviors* (e.g., when an infant approaches and follows a caregiver) and through *contact-maintaining behaviors* (e.g., touching, snuggling, and holding). A securely attached toddler is curious and eager to explore but maintains contact by occasionally looking back at the caregiver. A securely attached adult might phone home regularly or greet a parent with a warm hug.

Caregivers show attachment as well. They keep a watchful eye on their baby and respond to vocalizations, expressions, and gestures. For example, many mothers or fathers, awakening in the middle of the night, tiptoe to the crib to gaze fondly at their sleeping infant. During the day, many parents instinctively smooth their toddler's hair or caress their child's hand or cheek.

still-face technique

An experimental practice in which an adult keeps his or her face unmoving and expressionless in face-to-face interaction with an infant.

RESPONSE FOR Nurses (from page 139) It's too soon to tell. Temperament is not truly "fixed" but variable, especially in the first few months. Many "difficult" infants become happy, successful adolescents and adults. ●

attachment

According to Ainsworth, "an affectional tie" that an infant forms with a caregiver—a tie that binds them together in space and endures over time.

ANSWER TO OBSERVATION QUIZ

(from page 139) The one at left, which allows the father and baby to face each other. The models in which the baby faces forward give the baby more to look at, so you might think they would stimulate vocabulary building; but the "toward-facing" one permits more social interaction, which stimulates brain development—which, in turn, promotes language learning. ●

TABLE 4.3 AT ABOUT THIS TIME: Stages of Attachment

Age	Characteristics
Birth to 6 weeks	<i>Preattachment.</i> Newborns signal, via crying and body movements, that they need others. When people respond positively, the newborn is comforted and learns to seek more interaction. Newborns are also primed by brain patterns to recognize familiar voices and faces.
6 weeks to 8 months	<i>Attachment in the making.</i> Infants respond preferentially to familiar people by smiling, laughing, babbling. Their caregivers' voices, touch, expressions, and gestures are comforting, often overriding the impulse to cry. Trust (Erikson) develops.
8 months to 2 years	<i>Classic secure attachment.</i> Infants greet the primary caregiver, show separation anxiety when the caregiver leaves, play happily when the caregiver is present. Both infant and caregiver seek to be close to each other (proximity) and frequently look at each other (contact). In many caregiver-infant pairs, physical touch (patting, holding, caressing) is frequent.
2 to 6 years	<i>Attachment as launching pad.</i> Young children seek their caregiver's praise and reassurance as their social world expands. Interactive conversations and games (hide-and-seek, object play, reading, pretending) are common. Children expect caregivers to comfort and entertain.
6 to 12 years	<i>Mutual attachment.</i> Children seek to make their caregivers proud by learning what adults want them to learn, and adults reciprocate. In concrete operational thought (Piaget), specific accomplishments are valued by adults and children.
12 to 18 years	<i>New attachment figures.</i> Teenagers explore and make friendships on their own, using their working models of earlier attachments as a base. With more advanced, formal operational thinking (Piaget), physical contact is less important; shared ideals and goals are more influential.
18 years on	<i>Attachment revisited.</i> Adults develop relationships with others, especially romantic partnerships and parent-child relationships, that are influenced by earlier attachment patterns. Earlier caregivers continue to be supportive, and adults continue to seek their praise, but they are no longer the prime object of attachment. Past insecure attachments can be repaired, although this does not always happen.

Source. Adapted from Grooman, 2008.

Lifelong Bonds Although attachment is traditionally measured at about age 1 via the Strange Situation, it builds from the first days of life and remains apparent in adulthood.

ANSWER TO OBSERVATION QUIZ

(from page 140) The father uses his legs and feet to support his son at just the right distance for a great fatherly game of foot-kissing. ③

Over humanity's evolutionary history, various proximity-seeking and contact-maintaining behaviors have contributed to the survival of the species. Attachment keeps toddlers nearby, caregivers vigilant, and people of all ages secure.

SECURE AND INSECURE ATTACHMENT The concept of attachment was originally developed by John Bowlby (1969, 1973, 1988), a British developmentalist influenced by both psychoanalytic theory and ethology (the study of other animals). Inspired by Bowlby's work, Mary Ainsworth, then a young American graduate student, studied the relationship between parents and infants in Uganda (Ainsworth, 1973).

Ainsworth discovered that most infants develop special attachments to their caregivers, although there are cultural differences in expression and style (Ijzendoorn et al., 2006). (Ugandan mothers almost never kiss their infants; many U.S. parents kiss their babies frequently.) In every culture, Ainsworth found some infants more securely attached than others. Scientists have confirmed this variability in many cultures (Cassidy & Shaver, 1999; Grossmann et al., 2005; Sroufe, 2005; R. A. Thompson, 2006).

Attachment is classified into four types, labeled A, B, C, and D (see Table 4.4). Infants with **secure attachment** (type B) feel comfortable and confident. They are comforted by closeness to the caregiver, which provides confidence to explore. The caregiver becomes a *base for exploration*, giving assurance that it is safe to venture forth. A toddler might, for example, scramble down from the caregiver's lap to play with a toy but periodically look back, vocalize a few syllables, and return for a hug.

secure attachment

A relationship in which an infant obtains both comfort and confidence from the presence of his or her caregiver.

TABLE 4.4 Patterns of Infant Attachment

Type	Name of Pattern	In Play Room	Mother Leaves	Mother Returns	Toddlers in Category (percent)
A	Insecure-avoidant	Child plays happily	Child continues playing	Child ignores her	10–20
B	Secure	Child plays happily	Child pauses, is not as happy	Child welcomes her, returns to play	50–70
C	Insecure-resistant/ambivalent	Child clings, is preoccupied with mother	Child is unhappy, may stop playing	Child is angry; may cry, hit mother, cling	10–20
D	Disorganized	Child is cautious	Child may stare or yell; looks scared, confused	Child acts oddly—may freeze, scream, hit self, throw things	5–10

By contrast, insecure attachment is characterized by fear, anxiety, anger, or indifference. Insecurely attached children have less confidence. Some play independently without maintaining contact with the caregiver; this is **insecure-avoidant attachment** (type A). By contrast, an insecure child might be unwilling to leave the caregiver's lap; this is **insecure-resistant/ambivalent attachment** (type C).

The fourth category (type D) is **disorganized attachment**; it has elements of the other types but is clearly different from them. Type D infants may shift from hitting to kissing their mothers, from staring blankly to crying hysterically, from pinching themselves to freezing in place.

About two-thirds of all infants are securely attached (type B). Their caregiver's presence gives them courage to explore. A caregiver's departure may cause distress; the caregiver's return elicits positive social contact (such as smiling or hugging) and then more playing. A balanced reaction—being concerned about the caregiver's departure but not overwhelmed by it—reflects secure attachment. Almost one-third of infants are insecure, either indifferent (type A) or unduly anxious (type C).

About 5 to 10 percent of infants fit into none of these categories and are classified as disorganized (type D). Children who are classified as type D may be prevented by their disorganization from developing an effective strategy for social interaction (even an avoidant or resistant one, type A or C). Instead they may become hostile and aggressive, difficult for anyone to relate to (Lyons-Ruth et al., 1999). (Many of the Romanian children who were adopted after age 2, as described in Chapter 2, were type D.)

MEASURING ATTACHMENT Ainsworth (1973) developed a now-classic laboratory procedure, called the **Strange Situation**, to measure attachment. In a well-equipped playroom, an infant is closely observed for eight episodes, each lasting three minutes.

First, the child and a caregiver are together. Then, according to a set sequence, a stranger or the caregiver enters or leaves the playroom. Infants' responses indicate which type of attachment they have formed to their caregivers. (Reactions to the caregiver indicate the type of attachment; reactions to the stranger are influenced more by temperament than by affection.) For research purposes, observers are carefully trained and are certified when they can clearly distinguish among attachment types. The key behaviors they focus on are the following:

- *Exploration of the toys.* A secure toddler plays happily.
- *Reaction to the caregiver's departure.* A secure toddler misses the caregiver.
- *Reaction to the caregiver's return.* A secure toddler welcomes the caregiver's reappearance.

insecure-avoidant attachment

A pattern of attachment in which an infant avoids connection with the caregiver, as when the infant seems not to care about the caregiver's presence, departure, or return.

insecure-resistant/ambivalent attachment

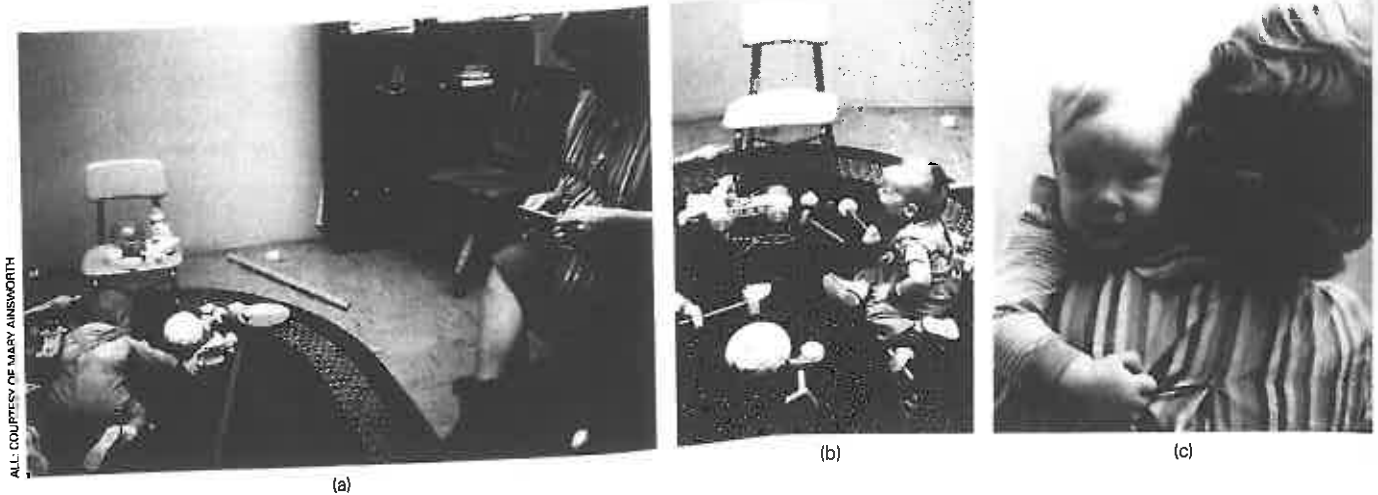
A pattern of attachment in which an infant's anxiety and uncertainty are evident, as when the infant becomes very upset at separation from the caregiver and both resists and seeks contact on reunion.

disorganized attachment

A type of attachment that is marked by an infant's inconsistent reactions to the caregiver's departure and return.

Strange Situation

A laboratory procedure for measuring attachment by evoking infants' reactions to the stress of various adults' comings and goings in an unfamiliar playroom.



The Attachment Experiment In this episode of the Strange Situation, Brian shows every sign of secure attachment. (a) He explores the playroom happily when his mother is present; (b) he cries when she leaves; and (c) he is readily comforted when she returns.

Attachment is not always measured by using the Strange Situation, especially when researchers want to study a large number of infants (Andreassen & West, 2007). Sometimes parents sort out 90 cards with questions about their children's characteristics, and sometimes they are interviewed extensively (according to a detailed protocol) about their relationships with their own parents.

CHANGES IN ATTACHMENT STATUS Early researchers expected secure attachment to "predict all the outcomes reasonably expected from a well-functioning personality" (R. A. Thompson & Raikes, 2003, p. 708). But this turned out not to be the case. Securely attached infants *are* more likely to become secure toddlers, socially competent preschoolers, academically skilled schoolchildren, and capable parents (R. A. Thompson, 2006). Many aspects of good parenting, including synchrony, generally correlate with secure attachment (see Table 4.5).

However, the type of attachment may change if family circumstances change. Temperament and age may also affect attachment. Many children shift in attachment

TABLE 4.5 General Predictors of Attachment Type

Secure attachment (type B) is more likely if:

- The parent is usually sensitive and responsive to the infant's needs.
- The infant-parent relationship is high in synchrony.
- The infant's temperament is "easy."
- The parents are not stressed about income, other children, or their marriage.
- The parents have a working model of secure attachment to their own parents.

Insecure attachment is more likely if:

- The parent mistreats the child. (Neglect increases type A; abuse increases types C and D.)
- The mother is mentally ill. (Paranoia increases type D; depression increases type C.)
- The parents are highly stressed about income, other children, or their marriage. (Parental stress increases types A and D.)
- The parents are intrusive and controlling. (Parental domination increases type A.)
- The parents are active alcoholics. (Alcoholic father increases type A; alcoholic mother increases type D.)
- The child's temperament is "difficult." (Difficult children tend to be type C.)
- The child's temperament is "slow to warm up." (This correlates with type A.)

transitions between one age and another (NICHD Early Child Care Research Network, 2001; Saffer et al., 2004), and personality does not always flow from the first attachments.

Social Referencing

Infants want to know adults' emotions. At about age 1, **social referencing** becomes evident as a child begins to look to another person for clarification or information, much as a student might consult a dictionary or other reference work. A glance of reassurance or words of caution, an expression of alarm, pleasure, or dismay—each becomes a social guide, telling toddlers how to react.

After age 1, when infants reach the stage of active exploration (Piaget) and the crisis of autonomy versus shame and doubt (Erikson), their need to consult others becomes especially urgent. As they move from one attractive object to another, toddlers search adult gazes and facial expressions for clues to appropriate behavior. They pay close attention to expressed emotions and watch carefully to detect intentions that explain other people's actions.

Social referencing has many practical applications. Consider mealtime. Caregivers all over the world smack their lips, pretend to taste, and say "yum," encouraging toddlers to eat and enjoy their first taste of beets, liver, or spinach. For their part, toddlers become astute at reading expressions, insisting on eating only the foods that the adults *really* like. Through this process, children in some cultures develop a taste for raw fish or curried goat or smelly cheese—foods that children in other cultures refuse.

Most everyday instances of social referencing occur with mothers. Infants usually adopt their mother's attitude, as expressed in vocal tone and facial expression. The baby on the subway at the beginning of this chapter did not cry, probably because the mother was calm and confident as she handed the baby to me.

The fact that toddlers look to their parents for clues about how to react does not mean that infants are always obedient, especially in cultures where parents and children value independence. One such culture is that of the United States, where compliance and disobedience have been the focus of study.

In one U.S. experiment, most toddlers did not obey their mother's request (prompted by the researchers) to pick up dozens of toys that they had not scattered (Kochanska et al., 2001). Their refusal indicated that their self-awareness had led to pride and autonomy.

These same toddlers, however, were quite obedient when their mothers told them not to touch an attractive toy. The mothers used tone, expression, and words to make this prohibition clear. Because of social referencing, toddlers understood the message. Even when the mothers were out of sight, half of the 14-month-olds and virtually all of the 22-month-olds obeyed. Most (80 percent) of the older toddlers seemed to agree with the mothers' judgment, a trait called *committed compliance* (Kochanska et al., 2001).

Overall, mothers use a variety of expressions, vocalizations, and gestures to convey social information, and infants rely on them. For example, babies reflect their mother's anxiety about strangers (de Rosnay et al.,

social referencing

Seeking information about how to react to an unfamiliar or ambiguous object or event by observing someone else's expressions and reactions. That other person becomes a *social reference*.

Whose Smile to Believe? Logically, the doctor is the one to watch: She has the stethoscope, and she is closer. But this baby references her mother, as any securely attached 1-year-old would.



2006) and use their mother's cues to understand the difference between real and pretend eating (Nishida & Lillard, 2007).

Mothers are not the only or even necessarily the best social references. During toddlerhood, strangers are sometimes consulted more than mothers, especially about the suitability of toys that the mother has not seen (Stenberg & Hagekull, 2007; Walden & Kim, 2005).

FATHERS AS SOCIAL PARTNERS In most nations and ethnic groups, fathers spend much less time with infants than mothers do and are less involved parents (Parke & Buriel, 2006; Tudge, 2008). Indeed, when families around the world are compared, only Brazilian fathers are as actively engaged with their infants as mothers are (Tudge, 2008). Although fathers' own ideas of appropriate male behavior are one reason for this lack of involvement, mothers often act as gatekeepers, limiting fathers' interactions with their children in the stereotyped belief that child care is the special domain of mothers (Gaertner et al., 2007).

A related stereotype holds that Latino fathers are too *macho*—too assertively masculine—to be interested in child care. Several studies have refuted this view, however, showing that Hispanic American fathers tend to be more involved with daily child care than are fathers in other U.S. ethnic groups (Parke, 2002).

A study of more than 1,000 Latino 9-month-olds found “fathers with moderate to high levels of engagement” (Cabrera et al., 2006, p. 1203). Although this study analyzed many possible correlates of paternal involvement (including income, education, and age), only one significant predictor of the level of engagement was found: how happy the father was with the infant's mother. Happier husbands tend to be more involved fathers.

Up, Up, and Away! The vigorous play typical of fathers is likely to help in the infant's mastery of motor skills and the development of muscle control. (Of course, fathers must be careful not to harm fragile bones and developing brains.)



CHROMOSOM / SCHM / PHOTO RESEARCHERS, INC.

COMPARING FATHERS AND MOTHERS All the available evidence confirms that fathers can do much to enhance their children's social and emotional development. Fathers can read their infant's emotions and respond with synchrony, often provoking more laughter than the mothers do. Some research finds that fathers are particularly adept at helping children modulate their anger. For instance, teenagers are less likely to lash out at friends and authorities if, as infants, they experienced a warm, responsive relationship with their fathers (Trautmann-Villalba et al., 2006).

Infants may be equally securely attached to both parents, more attached to their mothers, or more attached to their fathers (Belsky et al., 2006). Close father–infant relationships can teach infants (especially boys) appropriate expressions of emotion (Boyce et al., 2006). The influence is mutual; close relationships with their infants reduce fathers' risk of depression (Borke et al., 2007; Bronte-Tinkew et al., 2007).

Some research finds that fathers encourage infants to explore, whereas mothers tend to be more cautious and protective. According to several studies, “Mothers engage in more caregiving and comforting, and fathers in more high-intensity play” (Kochanska et al., 2008, p. 41).

When toddlers are about to explore, they often seek their father's approval, expecting fun from their fathers and comfort from their mothers (Lamb, 2000). In this, infants show social intelligence, because fathers play imaginative and exciting games. They move their infant's legs and arms in imitation of walking, kicking, or climbing; or play “airplane,” zooming the baby through the air; or tap and tickle the baby's stomach. Mothers caress, murmur, read, or sing soothingly; combine play with caretaking; and use standard sequences such as peek-a-boo and patty-cake. In short, fathers are more proximal when it comes to stimulating body play.

Infant Day Care

You have seen that social bonds are crucial for infants. Worldwide, most infants are cared for primarily by their mothers, with many of the rest cared for by relatives, typically grandmothers. On average, only about 15 percent of infants under age 2 receive care from a nonrelative who is both paid and trained to provide it (Melhuish & Petrogiannis, 2006).

INTERNATIONAL COMPARISONS The percentage of infants in day care varies markedly from nation to nation (Melhuish & Petrogiannis, 2006). Infant day care outside the home by strangers is common in France, Israel, and Sweden, where it is heavily subsidized by the government, but it is very scarce in India, Ethiopia, and most Latin American nations, where it is not subsidized.

In Canada, 70 percent of all children are cared for exclusively by their mothers in their first year, but in the United States, almost 80 percent are cared for by someone else (often the father) as well (S. M. Côté et al., 2008). One reason for this difference is that Canada provides financial support for new mothers, so more of them can afford to take time off from work to care for their babies (S. M. Côté et al., 2008).

Obviously, political and cultural values affect whether or not a mother provides exclusive care for her infant. People in some cultures believe that such exclusive care is beneficial, while those in other cultures prefer that infants have several caregivers. Which of these ethnotheories is correct? As you will soon learn, the effects of non-maternal care are difficult to assess, partly because cultural and economic factors affect the quality of that care.

A large study in England found that fewer than half the infants were cared for exclusively by their mothers, but almost half of those in nonmaternal care (44 percent) were cared for by their grandmothers. Overall, this study found that infants in non-maternal care were more likely to be emotionally immature later on—but that may be because the mothers of such infants tended to be young and poor. Youth and poverty correlate with children's behavioral problems no matter who the caregiver is (Fergusson et al., 2008).

It is not surprising that young, poor mothers relied on their own mothers for help with their babies; it is impossible to know how those children would have developed if they were cared for exclusively by their mothers—they might have been worse off, or they might have been better off.

Possible confounding factors occur whenever nonmaternal care is compared with maternal care. For obvious reasons, it would be unethical to force one mother of an infant to stay home and another to hold down a full-time job, so a valid comparison between an experimental group and a control group is impossible.

TYPES OF NONRELATIVE CARE More than half of all 1-year-olds in the United States are in “regularly scheduled” nonmaternal care (Loeb et al., 2004). Often a relative provides this care, which varies in quality and availability.

Another option is **family day care**, in which children are cared for in the home of a nonrelative. It is called “family” care because a relatively small group of young children of many ages are together, as siblings once were in large families. Family day care may be problematic for infants and toddlers because they get less attention than older children and are sometimes picked on by them (Kryzer et al., 2007).

A better option may be **center day care**, in which several paid adults care for many children in a place especially designed for the purpose. Most day-care centers group children by age, so infants and toddlers are separated from older children. Quality varies in such places, as do the laws that set standards.

In the United States, parents generally encounter a “mix of quality, price, type of care, and government subsidies” (Haskins, 2005, p. 168). Some center care is excellent

• UNDERSTANDING THE NUMBERS

How would you express the odds of a U.S. infant receiving nonmaternal care?

Answer A calculation of odds is always a comparison. Compared with Canadian infants, the odds are $80/30 = 2.7$. Compared with a U.S. infant who receives maternal care exclusively, the odds are $80/20 = 4.0$.

family day care

Child care that includes several children of various ages and usually occurs in the home of a woman who is paid to provide it.

center day care

Child care that occurs in a place especially designed for the purpose, where several paid adults care for many children. Usually the children are grouped by age, the day-care center is licensed, and providers are trained and certified in child development.

Fortunate Babies Center day care can be wonderful when it includes one-on-one care by trained professionals, as well as age-appropriate toys and furniture. Note that these caregivers are dressed for work—with bare feet.

OBSERVATION QUIZ

How old are these two babies?
(see answer, page 150) →



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(see Table 4.6), with adequate space, appropriate equipment, trained providers, and a ratio of two adults to five infants or better (de Schipper et al., 2006). Such care is hard to find, however. It is also quite expensive, so the families that use it are likely to have higher-than-average incomes. In some other nations where governments provide adequate funding, families at all income levels use center care.

THE EFFECTS OF INFANT DAY CARE The evidence is overwhelming that good preschool education (reviewed in Chapter 5) is beneficial for young children. However, when it comes to infant day care, “disagreements about the wisdom (indeed, the morality) of nonmaternal child care for the very young remain” (NICHD, 2005, p. xiv). Research that would resolve these disagreements is thwarted by the impossibility of randomly assigning infants to various kinds of care.

Nevertheless, it is apparent that the quality of day care varies because caregivers look after different numbers of infants and have received different types and amounts

TABLE 4.6 High-Quality Day Care: What to Look For

High-quality day care during infancy has five essential characteristics:

1. *Adequate attention to each infant.* This means a low caregiver-to-infant ratio (such as two reliable adults and five infants) and, probably even more important, a small group of infants. Infants need familiar, loving caregivers; continuity of care is crucial.
2. *Encouragement of language and sensorimotor development.* Infants should receive extensive language exposure through games, songs, conversations, and positive talk of all kinds, along with easily manipulated toys.
3. *Attention to health and safety.* Good signs are cleanliness routines (e.g., handwashing before meals), accident prevention (e.g., no small objects that could be swallowed), and safe areas to explore (e.g., a clean, padded area for movement).
4. *Well-trained and professional caregivers.* Ideally, every caregiver should have a degree or certificate in early-childhood education and should have worked with children for several years. Turnover should be low, morale high, and enthusiasm evident. Good caregivers love their children and their work.
5. *Warm and responsive caregivers.* Providers should engage the children in problem solving and discussions, rather than giving instructions. Quiet, obedient children may be an indication of unresponsive care.

For a more detailed evaluation of day care, see the checklist in NICHD, 2005.

of training (Waldfogel, 2006). Additional crucial variables are the responsiveness of mothers, grandmothers, and other caregivers and the temperaments of the infants involved.

A large study in Canada found that of the 30 percent of infants who were cared for by someone other than their mothers (usually relatives), boys from high-income families fared less well in nonmaternal care than other boys did (S. M. Côté et al., 2008). By age 4, they were slightly more likely to be aggressive and to have emotional problems (e.g., a teacher might note that a boy “seems unhappy”).

In contrast, Canadian boys from low-income families actually benefited from nonmaternal care. This study found no differential effects of nonmaternal care in girls. The researchers insist that no policy implications can be derived from their findings, partly because care varied so much in quality, location, and provider (S. M. Côté et al., 2008).

In the United States, an ongoing longitudinal study by the Early Child Care Network of the National Institute of Child Health and Human Development (NICHD) has followed the development of more than 1,300 children from birth to age 11 (NICHD, 2005). It has found many cognitive benefits of infant day care, especially in language.

The social consequences are not as clear, but most analyses of the data found that secure attachment to the mother was as common among infants in center care as among infants cared for at home. Like other, smaller studies, the NICHD research confirms that infant day care, even for 40 hours a week before age 1, has much less influence on child development than does the warmth of the mother–infant relationship (NICHD, 2005).

The importance of the mother (even when she is employed full time) was evident in the NICHD study. Infant day care was correlated with later emotional problems *only* when the mother was insensitive *and* when the infant spent more than 20 hours a week in a poor-quality program, with too few caregivers who had too little training (NICHD, 2005).

This study found that boys were affected more than girls were. Boys who received extensive nonmaternal care became more quarrelsome and had more conflicts with their teachers in later years than did other boys (NICHD, 2003b). No study has found that children of employed mothers develop emotional or other problems *solely* because their mothers are working outside the home.

On balance, it seems that most children are likely to benefit from their mothers' employment (Goldberg et al., 2008), perhaps because mothers who work outside the home have higher income and self-esteem, which affects the quality of their mothering. Many employed mothers make infant care their top priority and devote more nonwork hours to it than to housework, self-care, and entertainment.

A time-use study found that mothers who worked full time outside the home spent almost as much time playing with their babies (14½ hours a week) as did mothers without outside jobs (16 hours a week) (A. C. Huston & Aronson, 2005). To make more time for their babies, the employed mothers spent half as much time on housework, less time with their husbands, and almost no time on leisure. The study concludes:

There was no evidence that mothers' time at work interfered with the quality of their relationship with their infants, the quality of the home environment, or children's development. In fact, the results suggest the opposite. Mothers who spent more time at work provided slightly higher quality home environments.

[A. C. Huston & Aronson, 2005, p. 479]

ESPECIALLY FOR Day-Care Providers

A mother who brings her child to you for day care says that she knows she is harming her baby, but economic necessity compels her to work. What do you say? (see response, page 150) →



ANN HEISENFELT / AP PHOTO

Secure Attachment Kirstie and her 10-month-old daughter Mia enjoy a moment of synchrony in an infant day-care center sponsored by a family-friendly employer, General Mills. High-quality day care and high-quality home care are equally likely to foster secure attachment between mother and infant.

● **FOR DEEPER REFLECTION** Why is infant day care still controversial, since the evidence in favor of preschool education is so strong?

ANSWER TO OBSERVATION QUIZ

(from page 148) Definitely less than a year old, and perhaps even younger than 6 months. Remember that the average baby sits unsupported at 6 months and stands alone at 10 months; the support behind the baby at right and the position of the feet of the baby at left suggest they are both quite young. ●

RESPONSE FOR Day-Care Providers

(from page 149): Reassure the mother that you will keep her baby safe and will help to develop the baby's mind and social skills by fostering synchrony and attachment. Also tell her that the quality of mother–infant interaction at home is more important than anything else for psychosocial development; mothers who are employed full time usually have wonderful, secure relationships with their infants. If the mother wishes, you can discuss ways in which she can be a more responsive mother. ●

It is not surprising, given the importance of synchrony, attachment, and social referencing, that infants cared for at home by a depressed mother fare worse than they would in center care (Loeb et al., 2004). Many studies find that out-of-home day care is better than in-home care if an infant's family does not provide adequate stimulation and attention (Ramey et al., 2002; Votruba-Drzal et al., 2004). The infant's temperament, the parents' ethnotheories, and the family income affect any type of care the infant receives (Crockenberg, 2003).

KEYpoints

- Humans are social creatures and need each other; this is true for infants as well as for parents. Synchrony begins in the early months, as infants and caregivers interact face-to-face.
- Attachment is an emotional bond between people. Secure attachment allows learning to progress more smoothly and efficiently; insecurely attached infants are less confident and may develop emotional impairments.
- Social referencing teaches infants whether new things are fearsome or fun.
- The quality of infant care may be pivotal for development, whether it comes from mothers, fathers, other relatives, or professional providers. No single type of day care has proven to be best.

Conclusions in Theory and in Practice

You have seen in this chapter that the first two years of life are filled with psychosocial interactions, which result from genes, maturation, culture, and caregivers. All theorists and researchers agree that the first two years are crucial for a person's development: Early emotional and social development is influenced by the parents' behavior, the quality of care, cultural patterns, and inborn traits.

It has not been proven whether one positive influence, such as a good day-care center, can fully compensate for another, negative influence, such as a depressed mother (although parental influence is always significant). Multicultural research has identified a wide variety of child-rearing practices in different societies. The data imply that no single event (such as toilet training, in Freud's theory) determines emotional health.

On the basis of what you have learned, you could safely advise parents to play with their infants; respond to their physical and emotional needs; let babies explore; maintain a relationship; and expect every toddler to be sometimes angry, sometimes proud, sometimes fearful. Depending on infant temperament, parental actions and attitudes may or may not have a powerful effect on later development, but they certainly can make infants happier or sadder.

Synchrony, attachment, and social referencing are crucial to infant and toddler development. Beyond that, especially for individual children who have problems, we need to be more specific. Jacob, the boy whose emotional development was impaired (as you read earlier in this chapter), was not yet talking at age 3. Looking at Table 4.7, which shows the approximate ages at which infants typically develop various characteristics and achievements, you can see that even at 3 months Jacob's reactions to familiar people had been unusual. All infants need one or two people who are emotionally invested in them from the first days of their lives, and Jacob may have had no one. There was no indication of synchrony or secure attachment in the relationship between Jacob and his parents.