

You have read about how infants perceive, learn, and remember. Infants also are socio-emotional beings, capable of displaying emotions and initiating social interaction with people close to them. The main topics that we explore in this chapter are emotional and personality development, attachment, and the social contexts of the family and child care. ■

Emotional and Personality Development

Anyone who has been around infants for even a brief time can tell that they are emotional beings. Not only do infants express emotions, but they also vary in temperament. Some are shy and others are outgoing. Some are active and others much less so. Let's explore these and other aspects of emotional and personality development in infants.

Emotional Development

Imagine what your life would be like without emotion. Emotion is the color and music of life, as well as the tie that binds people together. How do psychologists define and classify emotions, and why are they important to development? How do emotions develop during the first two years of life?

What Are Emotions?

For our purposes, we will define **emotion** as feeling, or affect, that occurs when a person is in a state or an interaction that is important to him or her, especially to his or her well-being. Especially in infancy, emotions have important roles in (1) communication with others and (2) behavioral organization. Through emotions, infants communicate such important aspects of their lives as joy, sadness, interest, and fear (Witherington & others, 2010). In terms of behavioral organization, emotions influence infants' social responses and adaptive behavior as they interact with others in their world (Cole, 2016; Denham & Zinsser, 2014; Goodvin, Thompson, & Winer, 2015; Thompson, 2015, 2016).

Psychologists classify the broad range of emotions in many ways, but almost all classifications designate an emotion as either positive (pleasant) or negative (unpleasant) (Shuman & Scherer, 2014). Positive emotions include happiness, joy, love, and enthusiasm. Negative emotions include anxiety, anger, guilt, and sadness.

Biological and Environmental Influences

Emotions are influenced both by biological foundations and by a person's experiences (Calkins, 2015; Frenkel & Fox, 2015; Thompson & Goodvin, 2016). For example, children who are blind from birth and have never observed the smile or frown on another person's face smile and frown in the same way that children with normal vision do. Moreover, facial expressions of basic emotions such as happiness, surprise, anger, and fear are the same across cultures.

Cultural experiences and relationships influence emotional development (Cole, 2016). Emotion-linked interchanges provide the foundation for the infant's attachment to the parent (Goodvin, Thompson, & Winer, 2015). When toddlers hear their parents quarreling, they often react with distress and inhibit their play. Well-functioning families make each other laugh and may develop a light mood to defuse conflicts. A recent study of 18- to 24-month-olds found that parents' elicitation of talk about emotions was associated with their toddlers' sharing and helping behaviors (Brownell & others, 2013).

Emotional development and coping with stress are influenced by whether caregivers have maltreated or neglected children and whether children's caregivers are depressed or not (Cicchetti & Toth, 2016). When infants become stressed, they show better biological recovery from the stressors when their caregivers engage in sensitive caregiving with them (Thompson & Goodvin, 2016).

A recent study documented how babies pick up on their mothers' stress (Waters, West, & Mendes, 2014). In this study, mothers were

emotion Feeling, or affect, that occurs when a person is in a state or interaction that is important to them. Emotion is characterized by behavior that reflects (expresses) the pleasantness or unpleasantness of the state a person is in or the transactions being experienced.

separated from their babies and required to give a 5-minute speech, with half of the mothers receiving a positive evaluation and the other half a negative evaluation. Mothers who received negative feedback reported an increase in negative emotion and cardiac stress, while those who were given positive feedback reported an increase in positive emotion. The babies quickly detected their mothers' stress as reflected in an increased heart rate when reunited with them. And the greater the mother's stress response, the more her baby's heart rate increased.

Display rules—rules governing when, where, and how emotions should be expressed—are not universal. For example, researchers have found that East Asian infants display less frequent and less intense positive and negative emotions than do non-Latino White infants (Cole & Tan, 2007). Throughout childhood, East Asian parents encourage their children to show emotional reserve rather than to be emotionally expressive (Cole, 2016).



How do East Asian mothers handle their infants' and children's emotional development differently from non-Latina White mothers?

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Early Emotions

Emotions that infants express in the first six months of life include surprise, interest, joy, anger, sadness, fear, and disgust (see Figure 1). Other emotions that appear in infancy include jealousy, empathy, embarrassment, pride, shame, and guilt; most of these occur for the first time at some point in the second half of the first year or during the second year. These later-developing emotions have been called self-conscious or other-conscious emotions because they involve the emotional reactions of others (Lewis, 2007, 2010, 2015).

Some experts on infant socioemotional development, such as Jerome Kagan (2010, 2013), conclude that the structural immaturity of the infant brain makes it unlikely that emotions that require thought—such as guilt, pride, despair, shame, empathy, and jealousy—can be experienced in the first year. Thus, both Kagan (2010) and Joseph Campos (2009) argue that so-called “self-conscious” emotions don't occur until after the first year, a view that increasingly is shared by most developmental psychologists.

Emotional Expressions and Relationships

Emotional expressions are involved in infants' first relationships. The ability of infants to communicate emotions permits coordinated interactions with their caregivers and the beginning of an emotional bond between them (Goodvin, Thompson, & Winer, 2015; Thompson, 2015, 2016). Not only do parents change their emotional expressions in

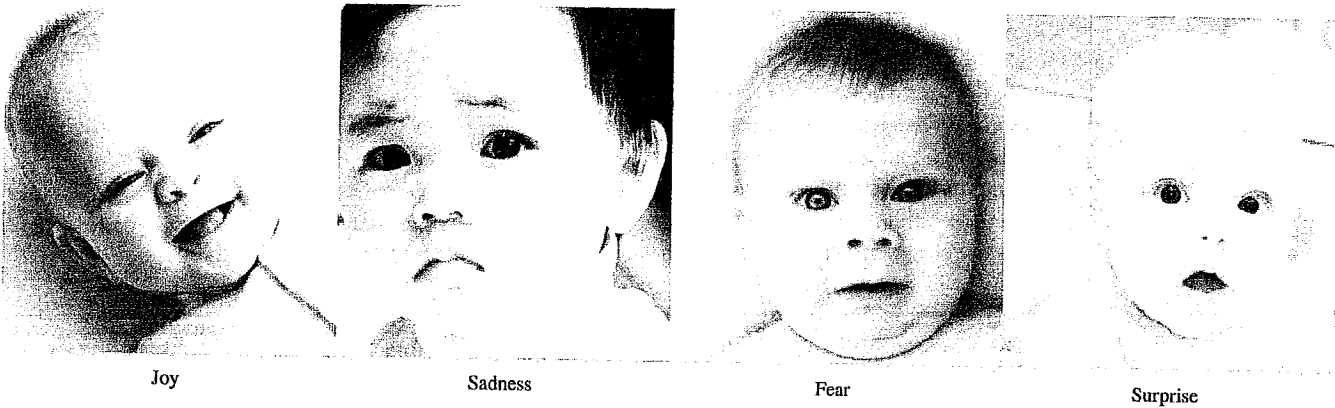


Figure 1 Expression of Different Emotions in Infants

(Left to right) © BananaStock/PictureQuest RF; © The McGraw-Hill Companies, Inc./Jill Braaten, photographer; © David Sacks/Getty Images; © Stockbyte/Getty Images RF

response to those of their infants (and each other), but infants also modify their emotional expressions in response to those of their parents. In other words, these interactions are mutually regulated. Because of this coordination, the interactions between parents and infants are described as *reciprocal*, or *synchronous*, when all is going well. Sensitive, responsive parents help their infants grow emotionally, whether the infants respond in distressed or happy ways (Wilson, Havighurst, & Harley, 2012).

Crying Cries and smiles are two emotional expressions that infants display when interacting with parents. These are babies' first forms of emotional communication. Crying is the most important mechanism newborns have for communicating with their world. Cries may also provide information about the health of the newborn's central nervous system. Newborns even tend to respond with cries and negative facial expressions when they hear other newborns cry (Dondi, Simion, & Caltran, 1999). However, a recent study revealed that newborns of depressed mothers showed less vocal distress when another infant cried, reflecting emotional and physiological dysregulation (Jones, 2012). Babies have at least three types of cries:

- **Basic cry:** A rhythmic pattern that usually consists of a cry, followed by a briefer silence, then a shorter whistle that is somewhat higher in pitch than the main cry, then another brief rest before the next cry. Some experts believe that hunger is one of the conditions that incite the basic cry.
- **Anger cry:** A variation of the basic cry, with more excess air forced through the vocal cords.
- **Pain cry:** A sudden long, initial loud cry followed by the holding of the breath; no preliminary moaning is present. The pain cry may be stimulated by physical pain or by any high-intensity stimulus.



What are some different types of cries?

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Most adults can determine whether an infant's cries signify anger or pain (Zeskind, Klein, & Marshall, 1992). Parents can distinguish among the various cries of their own baby better than among those of another baby.

Should parents respond to an infant's cries? Many developmental psychologists recommend that parents soothe a crying infant, especially in the first year. This reaction should help infants develop a sense of trust and secure attachment to the caregiver. One study revealed that mothers' negative emotional reactions (anger and anxiety) to crying increased the risk of subsequent attachment insecurity (Leerkes, Parade, & Gudmundson, 2011). Also, another study found that problems in infant soothability at 6 months of age were linked to insecure attachment at 12 months of age (Mills-Koonce, Propper, & Barnett, 2012). And a recent study found that mothers were more likely than fathers to use soothing techniques to reduce infant crying (Dayton & others, 2015).

Smiling Smiling is a critical social skill and a key social signal (Sauter & others, 2014). Two types of smiling can be distinguished in infants:

- **Reflexive smile:** A smile that does not occur in response to external stimuli and appears during the first month after birth, usually during sleep.



How Would You...?

As a human development and family studies professional, how would you respond to the parents of a 13-month-old baby who are concerned because their son has suddenly started crying every morning when they drop him off at child care despite the fact that he has been going to the same child care provider for over six months?

- **Social smile:** A smile that occurs in response to an external stimulus, typically a face in the case of the young infant. Social smiling occurs as early as 2 months of age.

Recent research found that smiling and laughter at 7 months of age were associated with self-regulation at 7 years of age (Posner & others, 2014). And one study found that higher maternal effortful control and positive emotionality predicted more initial infant smiling and laughter, while a higher level of parenting stress predicted a lower trajectory of infant smiling and laughter (Bridgett & others, 2013).

Fear One of a baby's earliest emotions is fear, which typically first appears at about 6 months and peaks at about 18 months. However, abused and neglected infants can show fear as early as 3 months (Witherington & others, 2010). The most frequent expression of an infant's fear involves **stranger anxiety**, in which an infant shows fear and wariness of strangers.

Stranger anxiety usually emerges gradually. It first appears at about 6 months in the form of wary reactions. By 9 months, fear of strangers is often more intense, and it continues to escalate through the infant's first birthday (Emde, Gaensbauer, & Harmon, 1976).

Not all infants show distress when they encounter a stranger. Besides individual variations, whether an infant shows stranger anxiety also depends on the social context and the characteristics of the stranger. Infants show less stranger anxiety when they are in familiar settings. For example, in one study, 10-month-olds showed little stranger anxiety when they met a stranger in their own home but much greater fear when they

encountered a stranger in a research laboratory (Sroufe, Waters, & Matas, 1974). Also, infants show less stranger anxiety when they are sitting on their mothers' laps than when they are in an infant seat several feet away from their mothers (Bohlin & Hagekull, 1993). Thus, it appears that when infants feel secure they are less likely to show stranger anxiety.

Who the stranger is and how the stranger behaves also influence stranger anxiety in infants. Infants are less fearful of child strangers than of adult strangers. They also are less fearful of friendly, outgoing, smiling strangers than of passive, unsmiling strangers (Bretherton, Stolberg, & Kreye, 1981).

In addition to stranger anxiety, infants experience fear of being separated from their caregivers. The result is **separation protest**—

crying when the caregiver leaves. Separation protest tends to peak at about 15 months among U.S. infants. A study of four different cultures found, similarly, that separation protest peaked at about 13 to 15 months (Kagan, Kearsley, & Zelazo, 1978). As indicated in Figure 2, the percentage of infants who engaged in separation protest varied across cultures, but the infants reached a peak of protest at about the same age—just before the middle of the second year.

Social Referencing Infants not only express emotions like fear but also “read” the emotions of other people (Cornew & others, 2012). **Social referencing** involves “reading” emotional cues in others to help determine how to act in a particular situation. The development of social referencing helps infants interpret ambiguous situations more accurately, as when they encounter a stranger (Pelaez, Virues-Ortega, & Gewirtz, 2012). By the end of the first year, a parent's facial expression—either smiling or fearful— influences whether an infant will explore an unfamiliar environment.

social smile A smile in response to an external stimulus, which, early in development, typically is a face.

stranger anxiety An infant's fear and wariness of strangers that typically appears in the second half of the first year of life.

separation protest An infant's distressed crying when the caregiver leaves.

social referencing “Reading” emotional cues in others to help determine how to act in a particular situation.

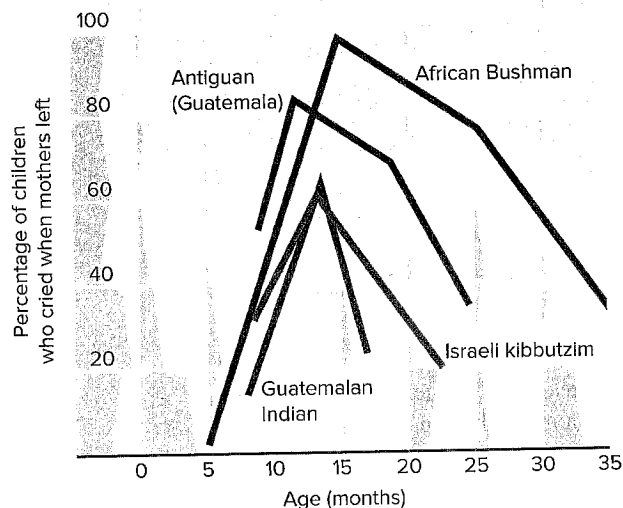


Figure 2 Separation Protest in Four Cultures

Note that separation protest peaked at about the same age in all four cultures in this study (13 to 15 months) (Kagan, Kearsley, & Zelazo, 1978). However, 100 percent of infants in an African Bushman culture engaged in separation protest compared with only about 60 percent of infants in Guatemalan Indian and Israeli kibbutzim cultures. *What might explain the fact that separation protest peaks at about the same age in different cultures?*

Infants become better at social referencing in the second year of life. At this age, they tend to “check” with their mother before they act; they look at her to see if she is happy, angry, or fearful.

temperament An individual’s behavioral style and characteristic way of responding emotionally.

easy child A child who is generally in a positive mood, who quickly establishes regular routines in infancy, and who adapts easily to new experiences.

Emotion Regulation and Coping

During the first year, the infant gradually develops an ability to inhibit, or minimize, the intensity and duration of emotional reactions (Calkins & Perry, 2016). From early in infancy, babies put their thumbs in their mouths to soothe themselves. In their second year, they may say things to help soothe themselves. When placed in his bed for the night, after a little crying and whimpering, a 20-month-old was overheard saying, “Go sleep, Alex. Okay.” But at first, infants depend mainly on caregivers to help them soothe their emotions, as when a caregiver rocks an infant to sleep, sings lullabies, gently strokes the infant, and so on.

Caregivers’ actions influence the infant’s neurobiological regulation of emotions (Goodvin, Thompson, & Winer, 2015). By soothing the infant, caregivers help infants modulate their emotions and reduce the level of stress hormones (de Haan & Gunnar, 2009). Many developmental psychologists believe it is a good strategy for a caregiver to soothe an infant before the infant gets into an intense, agitated, uncontrolled state (Calkins & Perry, 2016).

Later in infancy, when they become aroused, infants sometimes redirect their attention or distract themselves in order to reduce their arousal. By age 2, children can use language to define their feeling states and identify the context that is upsetting them (Calkins & Markovitch, 2010). A 2-year-old might say, “Doggy scary.” This type of communication may cue caregivers to help the child regulate emotion.

Contexts can influence emotion regulation (Groh & others, 2016; Thompson, 2015, 2016). Infants are often affected by fatigue, hunger, time of day, which people are around them, and where they are. Infants must learn to adapt to different contexts that require emotion regulation. Further, new demands appear as the infant becomes older and parents modify their expectations. For example, a parent may take it in stride if a 6-month-old infant screams in a restaurant but may react very differently if a 1½-year-old starts screaming.

Temperament

Do you get upset easily? Does it take much to get you angry or to make you laugh? Even at birth, babies seem to have different emotional styles. One infant is cheerful and happy much of the time; another seems to cry constantly. These tendencies reflect **temperament**, or individual differences in behavioral styles, emotions, and characteristic ways of responding. With regard to its link to emotion, temperament refers to individual differences in how quickly the emotion is shown, how strong it is, how long it lasts, and how quickly it fades away (Campos, 2009).

Another way of describing temperament is in terms of predispositions toward emotional reactivity and self-regulation (Bates & Pettit, 2015). *Reactivity* involves variations in the speed and intensity with which an individual responds to situations with positive or negative emotions. *Self-regulation* involves variations in the extent or effectiveness of an individual’s control over emotions.

Describing and Classifying Temperament

How would you describe your temperament or the temperament of a friend? Researchers have described and classified the temperaments of individuals in different ways (Gartstein, Putnam, & Kliewer, 2016; Stifter & Dollar, 2016). Here we examine three of those ways.

Chess and Thomas’ Classification Psychiatrists Alexander Chess and Stella Thomas (Chess & Thomas, 1977; Thomas & Chess, 1991) identified three basic types, or clusters, of temperament:

- **Easy child:** This child is generally in a positive mood, quickly establishes regular routines in infancy, and adapts easily to new experiences.

- **Difficult child:** This child reacts negatively and cries frequently, engages in irregular daily routines, and is slow to accept change.
- **Slow-to-warm-up child:** This child has a low activity level, is somewhat negative, and displays a low intensity of mood.

difficult child A child who tends to react negatively and cry frequently, who engages in irregular daily routines, and who is slow to accept new experiences.

slow-to-warm-up child A child who has a low activity level, is somewhat negative, and displays a low intensity of mood.

In their longitudinal investigation, Chess and Thomas found that 40 percent of the children they studied could be classified as easy, 10 percent as difficult, and 15 percent as slow to warm up. Notice that 35 percent did not fit any of the three patterns. Researchers have found that these three basic clusters of temperament are moderately stable across the childhood years.

One study revealed that young children with a difficult temperament showed more problems when they experienced low-quality child care and fewer problems when they experienced high-quality child care than did young children with an easy temperament (Pluess & Belsky, 2009).

Kagan's Concept of Behavioral Inhibition Another way of classifying temperament focuses on the differences between a shy, subdued, timid child and a sociable, extraverted, bold child. Jerome Kagan (2002, 2010, 2013) regards shyness with strangers (peers or adults) as one feature of a broad temperament category called *inhibition to the unfamiliar*. Inhibited children react to many aspects of unfamiliarity with initial avoidance, distress, or subdued affect, beginning around 7 to 9 months. In recent research, having an inhibited temperament at 2 to 3 years of age was related to having social phobia symptoms at 7 years of age (Lahat & others, 2014). And recent findings also indicate that infants and young children who have an inhibited temperament are at risk for developing social anxiety disorder in adolescence and adulthood (Perez-Edgar & Guyer, 2014; Rapee, 2014).

Effortful Control (Self-Regulation) Mary Rothbart and John Bates (2006) stress that effortful control (self-regulation) is an important dimension of temperament. Infants who are high in effortful control show an ability to keep their arousal from getting too intense and have strategies for soothing themselves. By contrast, children who are low in effortful control are often unable to control their arousal; they are easily agitated and become intensely emotional. One study found that young children higher in effortful control were more likely to wait longer to express anger and were more likely to use a self-regulatory strategy, distraction (Tan, Armstrong, & Cole, 2013). Another study revealed effortful control was a strong predictor of academic success skills in kindergarten children from low-income families (Morris & others, 2013).

An important point about temperament classifications such as Chess and Thomas' and Rothbart and Bates' is that children should not be pigeonholed as having only one temperament

What are some ways that developmentalists have classified infants' temperaments? Which classification makes the most sense to you, based on your observations of infants?

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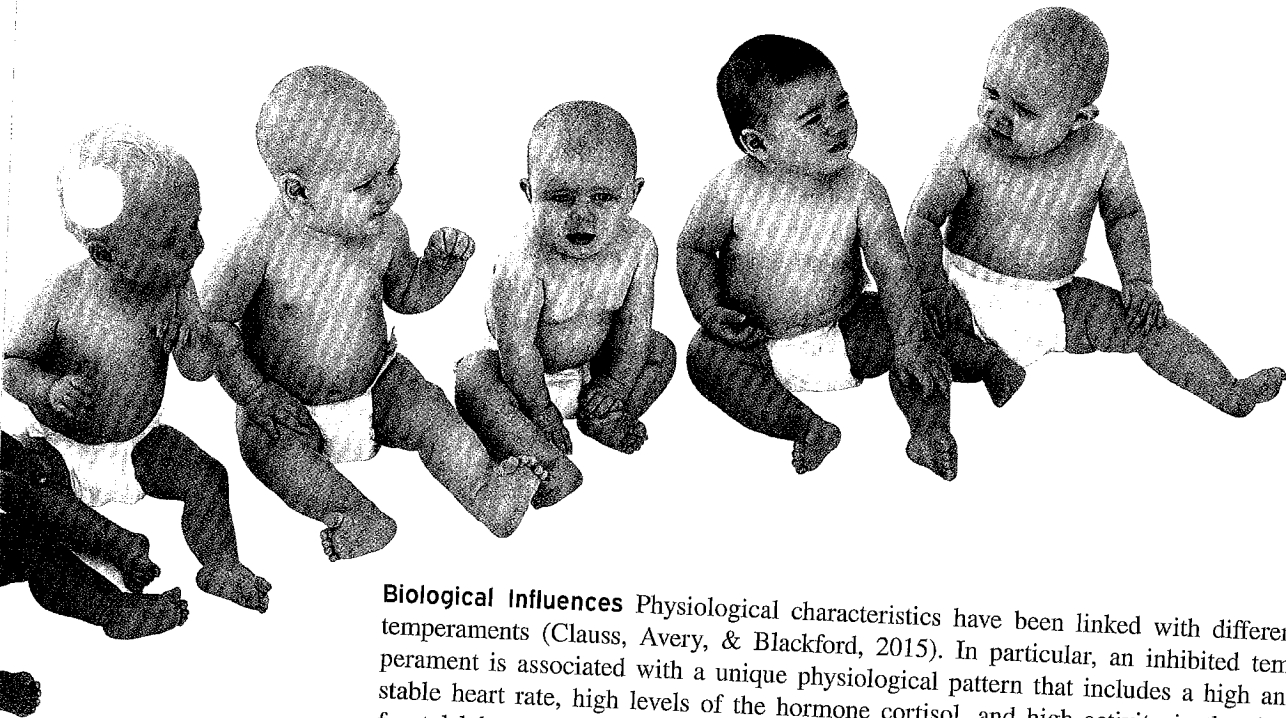
dimension, such as “difficult” or “negative.” A good strategy when attempting to classify a child’s temperament is to think of temperament as consisting of multiple dimensions (Bates, 2012a, b). For example, a child might be extraverted, show little emotional negativity, and have good self-regulation. Another child might be introverted, show little emotional negativity, and have a low level of self-regulation.

The development of temperament capabilities such as effortful control allows individual differences to emerge (Bates & Pettit, 2015). For example, although maturation of the brain’s prefrontal lobes must occur for any child’s attention to improve and the child to achieve effortful control, some children develop effortful control while others do not. And it is these individual differences in children that are at the heart of what temperament is (Bates, 2012a, b).

Biological Foundations and Experience

How does a child acquire a certain temperament? Kagan (2010, 2013) argues that children inherit a physiology that predisposes them to have a particular type of temperament. However, through experience they may learn to modify their temperament to some degree. For example, children may inherit a physiology that predisposes them to be fearful and inhibited but then learn to reduce their fear and inhibition to some degree.

How might caregivers help a child become less fearful and inhibited? An important first step is to find out what frightens the child. Comforting and reassuring the child, and addressing their specific fears, are good strategies.



Biological Influences Physiological characteristics have been linked with different temperaments (Clauss, Avery, & Blackford, 2015). In particular, an inhibited temperament is associated with a unique physiological pattern that includes a high and stable heart rate, high levels of the hormone cortisol, and high activity in the right frontal lobe of the brain (Kagan, 2013). This pattern may be tied to the excitability of the amygdala, a structure in the brain that plays an important role in fear and inhibition. Twin and adoption studies also suggest that heredity has a moderate influence on differences in temperament within a group of people (Plomin & others, 2009).

Too often the biological foundations of temperament are interpreted as meaning that temperament cannot develop or change. However, important self-regulatory dimensions of temperament such as adaptability, soothability, and persistence look very different in a 1-year-old and a 5-year-old (Thompson, 2015). These temperament dimensions develop and change with the growth of the neurobiological foundations of self-regulation (Calkins & Perry, 2016).

Gender, Culture, and Temperament Gender may be an important factor shaping the context that influences temperament. Parents might react differently to an infant’s

temperament based on whether the baby is a boy or a girl (Gaias & others, 2012). For example, in one study, mothers were more responsive to the crying of irritable girls than to that of irritable boys (Crockenberg, 1986).

Similarly, the reaction to an infant's temperament may depend in part on culture (Chen, Fu, & Zhao, 2015; Chen & Schmidt, 2015). For example, an active temperament might be valued in some cultures (such as the United States) but not in others (such as China). Indeed, children's temperament can vary across cultures. For example, behavioral inhibition is valued more highly in China than in North America (Cole, 2016).

In short, many aspects of a child's environment can encourage or discourage the persistence of temperament characteristics (Goodvin, Thompson, & Winer, 2015). One useful way of thinking about these relationships applies the concept of goodness of fit, which we examine next.

Goodness of Fit and Parenting

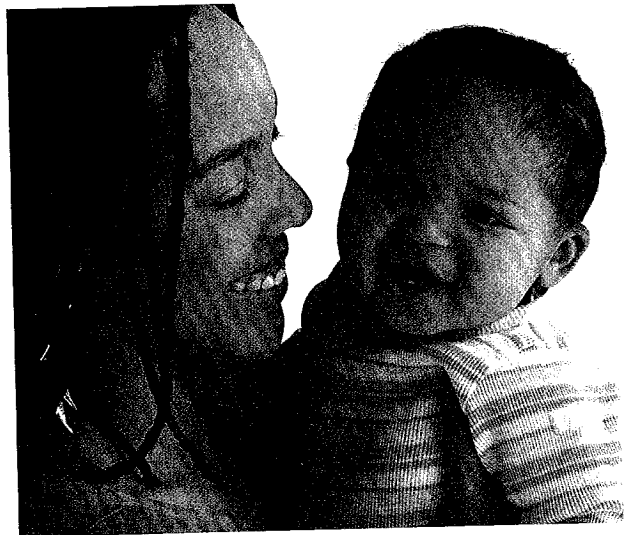
Goodness of fit refers to the match between a child's temperament and the environmental demands the child must cope with. Suppose Jason is an active toddler who is made to sit still for long periods and Jack is a slow-to-warm-up toddler who is abruptly pushed into new situations on a regular basis. Both Jason and Jack face a lack of fit between their temperament and environmental demands. Lack of fit can produce adjustment problems (Rothbart, 2011). Researchers have found that decreases in infants' negative emotionality are linked to higher levels of parental sensitivity, involvement, and responsivity (Wachs & Bates, 2010).

Many parents don't come to believe in the importance of temperament until the birth of their second child. They viewed their first child's behavior as stemming from how they treated the child. But then they find that some strategies that worked with their first child are not as effective with the second child. Some problems experienced with the first child (such as those associated with feeding, sleeping, and coping with strangers) may not

arise with the second child, but new problems arise. Such experiences strongly suggest that children differ from each other very early in life and that these differences have important implications for parent-child interaction (Rothbart, 2011).

What are the implications of temperamental variations for parenting? Decreases in infants' negative emotionality occur when parents are more involved, responsive, and sensitive when interacting with their children (Goodvin, Thompson, & Winer, 2015). Temperament experts Ann Sanson and Mary Rothbart (1995) also recommend the following strategies for temperament-sensitive parenting:

- *Attention to and respect for individuality.* One implication is that it is difficult to generate general prescriptions for "good parenting." A goal might be accomplished in one way with one child and in another way with another child, depending on each child's temperament. Parents need to be flexible and sensitive to the infant's signals and needs.
- *Structuring the child's environment.* Crowded, noisy environments can pose greater problems for some children (such as a "difficult child") than for others (such as an "easy child"). We might also expect that a fearful, withdrawing child would benefit from slower entry into new contexts.
- *Avoid applying negative labels to the child.* Acknowledging that some children are harder to parent than others is often helpful, and



What are some good strategies for parents to adopt when responding to their infant's temperament?

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How Would You...?

As a **social worker**, how would you apply information about an infant's temperament to maximize the goodness of fit in a clinical setting?

goodness of fit Refers to the match between a child's temperament and the environmental demands with which the child must cope.

advice on how to handle particular kinds of difficult circumstances can be helpful. However, labeling a child “difficult” runs the risk of becoming a self-fulfilling prophecy. That is, if a child is identified as “difficult,” people may treat him or her in a way that elicits “difficult” behavior.

A final comment about temperament is that recently the *differential susceptibility model* and the *biological sensitivity to context model* have been proposed and studied (Belsky, 2016; Belsky & others, 2015; Belsky & Pluess, 2016; Simpson & Belsky, 2016). These models emphasize that certain characteristics—such as a difficult temperament—that render children more vulnerable to difficulty in adverse contexts also make them more susceptible to optimal growth in very supportive conditions. These models may help us see “negative” temperament characteristics in a new light.

Personality Development

Emotions and temperament are key aspects of personality, the enduring personal characteristics of individuals. Let’s now examine characteristics that are often thought of as central to personality development during infancy: trust, the development of a sense of self, and progress toward independence.

Trust

According to Erik Erikson (1968), the first year of life is characterized by the trust-versus-mistrust stage of development. Upon emerging from a life of regularity, warmth, and protection in the mother’s womb, the infant faces a world that is less secure. Erikson proposed that infants learn trust when they are cared for in a consistently nurturant manner. If the infant is not well fed and kept warm on a consistent basis, a sense of mistrust is likely to develop.

In Erikson’s view, the issue of trust versus mistrust is not resolved once and for all in the first year of life. It arises again at each successive stage of development, and the outcomes can be positive or negative. For example, children who leave infancy with a sense of trust can still have their sense of mistrust activated at a later stage, perhaps if their parents become separated or divorced.

The Developing Sense of Self

It is difficult to study the self in infancy mainly because infants cannot tell us how they experience themselves. Infants cannot verbally express their views of the self. They also cannot understand complex instructions from researchers.

A rudimentary form of self-recognition—being attentive and positive toward one’s image in a mirror—appears as early as 3 months (Mascolo & Fischer, 2007; Pipp, Fischer, & Jennings, 1987). However, a central, more complete index of self-recognition—the ability to recognize one’s physical features—does not emerge until the second year (Thompson, 2006).

One ingenious strategy to test infants’ visual self-recognition is the use of a mirror technique in which an infant’s mother first puts a dot of rouge on the infant’s nose. Then, an observer watches to see how often the infant touches its nose. Next, the infant is placed in front of a mirror and observers detect whether nose touching increases. Why does this matter? The idea is that increased nose touching indicates that the infant recognizes itself in the mirror and is trying to touch or rub off the rouge because the rouge violates the infant’s view of itself; that is, the infant thinks something is not right, since it believes its real self does not have a dot of rouge on it.

Figure 3 displays the results of two investigations that used the mirror technique. The researchers found that before they were 1 year old, infants did not recognize themselves in the mirror (Amsterdam, 1968; Lewis & Brooks-Gunn, 1979). Signs of self-recognition began to appear among some infants when they were 15 to 18 months old. By the time they were 2 years old, most children recognized themselves in the mirror.

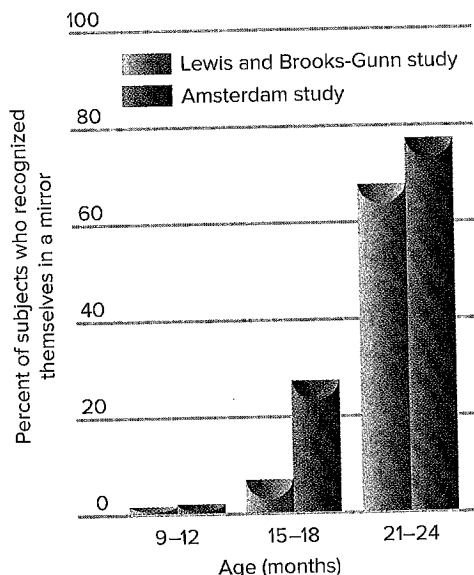


Figure 3 The Development of Self-Recognition in Infancy

The graph shows the findings of two studies in which infants less than 1 year of age did not recognize themselves in the mirror. A slight increase in the percentage of infant self-recognition occurred around 15 to 18 months of age. By 2 years of age, a majority of children recognized themselves. *Why do researchers study whether infants recognize themselves in a mirror?*

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In sum, infants begin to develop a self-understanding, called self-recognition, at approximately 18 months of age (Hart & Karmel, 1996; Lewis, 2005).

In one study, biweekly assessments of infants from 15 to 23 months of age were conducted (Courage, Edison, & Howe, 2004). Self-recognition emerged gradually over this period, first appearing in the form of mirror recognition, followed by use of the personal pronoun “me” and then by recognizing a photo of themselves. These aspects of self-recognition are often referred to as the first indications of toddlers’ understanding of the mental state of “me,” “that they are objects in their own mental representation of the world” (Lewis, 2005, p. 363).

Late in the second year and early in the third year, toddlers show other emerging forms of self-awareness that reflect a sense of “me” (Goodvin, Thompson, & Winer, 2015). For example, they refer to themselves by saying “Me big”; they label internal experiences such as emotions; they monitor themselves, as when a toddler says, “Do it myself”; and they announce that things are theirs (Bullock & Lutkenhaus, 1990; Fasig, 2000).

Also, researchers recently have found that the capacity to understand others may begin to develop during infancy (Carpendale & Lewis, 2015; Rhodes & others, 2015). Research indicates that as early as 13 months of age, infants seem to consider another’s perspective when predicting their actions (Choi & Luo, 2015).

Independence

Not only does the infant develop a sense of self in the second year of life, but independence also becomes a more central theme in the infant’s life. Erikson (1968) stressed that independence is an important issue in the second year of life. Erikson’s second stage of development is identified as autonomy versus shame and doubt. Autonomy builds as the infant’s mental and motor abilities develop. At this point, not only can infants walk, but they can also climb, open and close, drop, push and pull, and hold and let go. Infants feel pride in these new accomplishments and want to do everything themselves, whether the activity is flushing a toilet, pulling the wrapping off a package, or deciding what to eat. It is important to recognize toddlers’ motivation to do what they are capable of doing at their own pace. Then they can learn to control their muscles and their impulses themselves. Conversely, when caregivers are impatient and do for toddlers what they are capable of doing themselves, shame and doubt develop. To be sure, every parent has rushed a child from time to time, and one instance of rushing is unlikely to result in impaired development. It is only when parents consistently overprotect toddlers or criticize accidents (wetting, soiling, spilling, or breaking, for example) that children are likely to develop an excessive

sense of shame and doubt about their ability to control themselves and their world.

Erikson also argued that the stage of autonomy versus shame and doubt has important implications for the development of independence and identity during adolescence. The development of autonomy during the toddler years gives adolescents the courage to be independent individuals who can choose and guide their own future.

How Would You...?

As a **human development and family studies professional**, how would you work with parents who showed signs of being overly protective or critical to the point of impairing their toddler’s autonomy?



Social Orientation and Attachment

So far, we have discussed how emotions and emotional competence change as children develop. We have also examined the role of emotional style; in effect, we have seen how emotions set the tone of our experiences in life. But emotions also write the lyrics because they are at the core of our interest in the social world and our relationships with others.

Social Orientation and Understanding

In Ross Thompson's (2006, 2014, 2015, 2016) view, infants are socioemotional beings who show a strong interest in their social world and are motivated to orient themselves toward it and to understand it. In earlier chapters we described many of the biological and cognitive foundations that contribute to the infant's development of social orientation and understanding. We will call attention to relevant biological and cognitive factors as we explore social orientation; locomotion; intention, goal-directed behavior and cooperation; and social referencing. Discussing biological, cognitive, and social processes together reminds us of an important aspect of development that was pointed out earlier—that these processes are intricately intertwined (Denham & Howarth, 2016).

Social Orientation

From early in their development, infants are captivated by the social world. Young infants are attuned to the sounds of human voices and stare intently at faces, especially their caregiver's face (Jakobsen, Umstead, & Simpson, 2016; Montirosso & others, 2015). As infants develop, they become adept at interpreting the meaning of facial expressions (Otte & others, 2015). Face-to-face play often begins to characterize caregiver-infant interactions when the infant is about 2 to 3 months of age. Such play reflects many mothers' motivation to create a positive emotional state in their infants (Laible, Thompson, & Froimson, 2015).

Infants also learn about the social world through contexts other than face-to-face play with a caregiver. Even though infants as young as 6 months show an interest in each other, their interaction with peers increases considerably in the latter half of the second year. Between 18 and 24 months, children markedly increase their imitative and reciprocal play—for example, imitating nonverbal actions like jumping and running (Eckerman & Whitehead, 1999). One study involved presenting 1- and 2-year-olds with a simple cooperative task that consisted of pulling a lever to get an attractive toy (Brownell, Ramani, & Zerwas, 2006) (see Figure 4). Any coordinated actions of the 1-year-olds appeared to be coincidental rather than cooperative, whereas the 2-year-olds' behavior was characterized as active cooperation to reach a goal.

Locomotion

Recall from earlier in the chapter how important independence is for infants, especially in the second year of life. As infants develop the ability to crawl, walk, and run, they are able to explore and expand their social world. These newly developed self-produced locomotor skills allow the infant to independently initiate social interchanges on a more frequent basis.

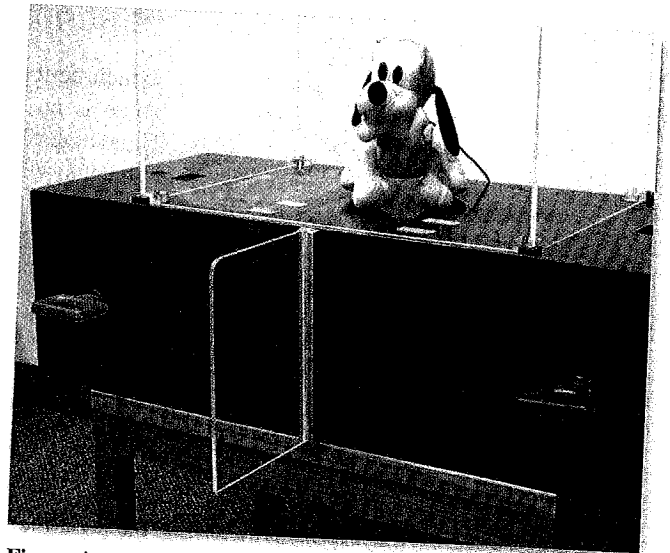


Figure 4 The Cooperation Task

The cooperation task consisted of two handles on a box, atop which was an animated musical toy, surreptitiously activated by remote control when both handles were pulled. The handles were placed far enough apart that one child could not pull both handles. The experimenter demonstrated the task, saying, "Watch! If you pull the handles, the doggie will sing" (Brownell, Ramani, & Zerwas, 2006).

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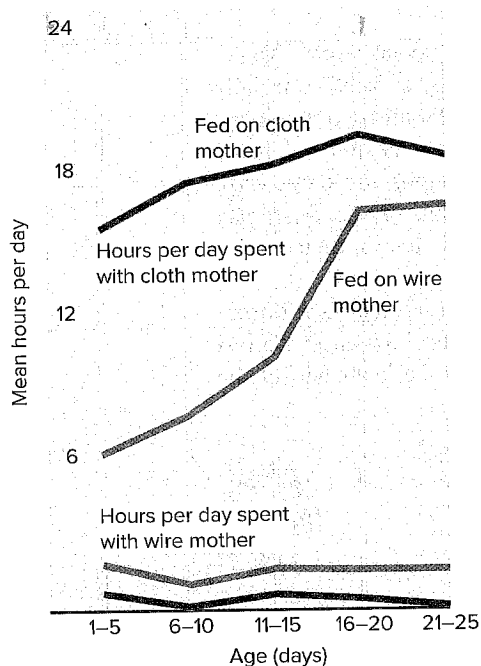
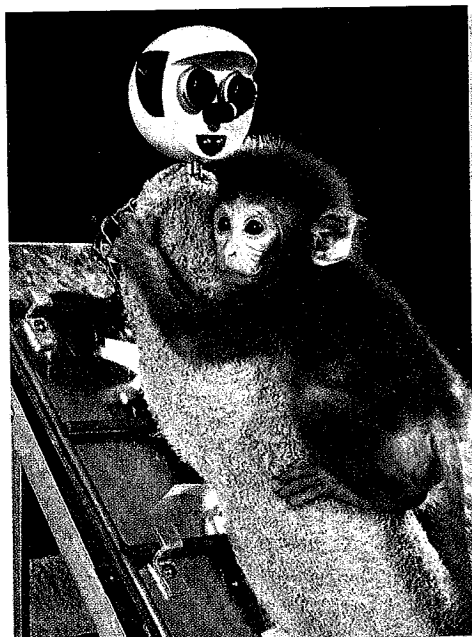


Figure 5 Contact Time with Wire and Cloth Surrogate Mothers

Regardless of whether the infant monkeys were fed by a wire or a cloth mother, they overwhelmingly preferred to spend contact time with the cloth mother. *How do these results compare with what Freud's theory and Erikson's theory would predict about human infants?*

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mother fed them, the infant monkeys spent far more time with the cloth mother. Even if the wire mother, but not the cloth mother, provided nourishment, the infant monkeys spent more time with the cloth mother. And when Harlow frightened the monkeys, those

who were "raised" by the cloth mother ran to that mother and clung to it; those who were raised by the wire mother did not. Whether the mother provided comfort seemed to determine whether the monkeys associated

Locomotion is also important for its motivational implications (Adolph & Berger, 2015; Adolph & Robinson, 2015; Cole, Robinson, & Adolph, 2016). Once infants have the ability to move in goal-directed pursuits, the rewards gained from these pursuits lead to further efforts to explore and develop skills.

Intention, Goal-Directed Behavior, and Cooperation

The ability to perceive people as engaging in intentional and goal-directed behavior is an important social-cognitive accomplishment, and this initially occurs toward the end of the first year (Thompson, 2015, 2016). Joint attention and gaze-following help the infant understand that other people have intentions (Hoehl & Striano, 2015; Yu & Smith, 2016). By their first birthday, infants have begun to direct their caregiver's attention to objects that capture their interest (Heimann & others, 2006).

Infants' Social Sophistication and Insight

In sum, researchers are discovering that infants are more socially sophisticated and insightful at younger ages than was previously envisioned (Thompson, 2015, 2016). This sophistication and insight is reflected in infants' perceptions of others' actions as intentionally motivated and goal-directed and their motivation to share and participate in that intentionality by their first birthday (Tomasello, 2014). The more advanced social-cognitive skills of infants could be expected to influence their understanding and awareness of attachment to a caregiver.

Attachment

Attachment is a close emotional bond between two people. There is no shortage of theories about infant attachment. Three theorists—Freud, Erikson, and Bowlby—proposed influential views of attachment.

Freud theorized that infants become attached to the person or object that provides them with oral satisfaction. For most infants, this is the mother, since she is most likely to feed the infant. Is feeding as important as Freud thought? A classic study by Harry Harlow (1958) indicates that the answer is no (see Figure 5).

Harlow removed infant monkeys from their mothers at birth; for six months they were fed by two surrogate (substitute) "mothers." One surrogate mother was made of wire, the other of cloth. Half of the infant monkeys were fed by the wire mother, half by the cloth mother. Periodically, the amount of time the infant monkeys spent with either the wire or the cloth mother was computed. Regardless of which

attachment A close emotional bond between two people.

that mother with security. This study clearly demonstrated that feeding is not the crucial element in the attachment process and that contact comfort is important.

Physical comfort also plays a role in Erik Erikson's (1968) view of the infant's development. Recall Erikson's proposal that during the first year of life infants are in the stage of trust versus mistrust. Physical comfort and sensitive care, according to Erikson (1968), are key to establishing a basic level of trust during infancy. The infant's sense of trust, in turn, is the foundation for attachment and sets the stage for a lifelong expectation that the world will be a good and pleasant place.

The ethological perspective of British psychiatrist John Bowlby (1969, 1989) also stresses the importance of attachment in the first year of life and the responsiveness of the caregiver. Bowlby believed that both the infant and its primary caregivers are biologically predisposed to form attachments. He argued that the newborn is biologically equipped to elicit attachment behavior. The baby cries, clings, coos, and smiles. Later, the infant crawls, walks, and follows the mother. The immediate result is to keep the primary caregiver nearby; the long-term effect is to increase the infant's chances of survival (Thompson, 2006, 2015).

Attachment does not emerge suddenly but rather develops in a series of phases, moving from a baby's general preference for human figures to a partnership with primary caregivers. Following are four such phases based on Bowlby's conceptualization of attachment (Schaffer, 1996):

- *Phase 1: From birth to 2 months.* Infants instinctively direct their attachment to human figures. Strangers, siblings, and parents are equally likely to elicit smiling or crying from the infant.
- *Phase 2: From 2 to 7 months.* Attachment becomes focused on one figure, usually the primary caregiver, as the baby gradually learns to distinguish between familiar and unfamiliar people.
- *Phase 3: From 7 to 24 months.* Specific attachments develop. With increased locomotor skills, babies actively seek contact with regular caregivers, such as the mother or father.
- *Phase 4: From 24 months on.* Children become aware of other people's feelings, goals, and plans and begin to take these into account in directing their own actions.

Bowlby argued that infants develop an *internal working model* of attachment, a simple mental model of the caregiver, their relationship to him or her, and the self as deserving of nurturant care. The infant's internal working model of attachment with the caregiver influences the infant's, and later the child's, subsequent responses to other people (Cassidy, 2016; Roisman & Groh, 2011). The internal model of attachment also has played a pivotal role in the discovery of links between attachment and subsequent emotional understanding, conscious development, and self-concept (Bretherton & Munholland, 2016; Thompson, 2015, 2016).

Individual Differences in Attachment

Although attachment to a caregiver intensifies midway through the first year, isn't it likely that the quality of a baby's attachment varies? Mary Ainsworth (1979) thought so. Ainsworth created the **Strange Situation**, an observational measure of infant attachment in which the infant experiences a series of introductions, separations, and reunions with the caregiver and an adult stranger in a prescribed order. In using the Strange Situation, researchers hope that their observations will provide information about the infant's motivation to be near the caregiver and the degree to which the caregiver's presence provides the infant with security and confidence (Brownell & others, 2015; Solomon & George, 2016).

Based on how babies respond in the Strange Situation, they are described as being securely attached or insecurely attached (in one of three ways) to the caregiver:

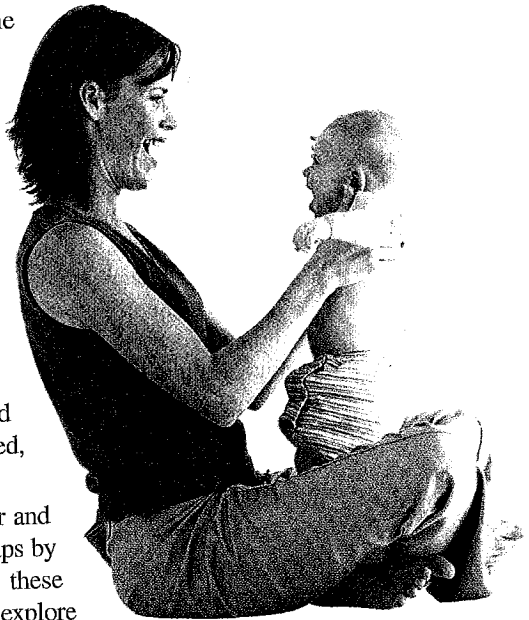
- **Securely attached babies** use the caregiver as a secure base from which to explore the environment. When they are in the presence of

Strange Situation An observational measure of infant attachment that requires the infant to move through a series of introductions, separations, and reunions with the caregiver and an adult stranger in a prescribed order.

securely attached babies Babies that use the caregiver as a secure base from which to explore their environment.

their caregiver, securely attached infants explore the room and examine toys that have been placed in it. When the caregiver departs, securely attached infants might protest mildly; when the caregiver returns, these infants reestablish positive interaction with her, perhaps by smiling or climbing onto her lap. Subsequently, they often resume playing with the toys in the room.

- **Insecure avoidant babies** show insecurity by avoiding the caregiver. In the Strange Situation, these babies engage in little interaction with the caregiver, are not distressed when she leaves the room, usually do not reestablish contact with her upon her return, and may even turn their back on her. If contact is established, the infant usually leans away or looks away.
- **Insecure resistant babies** often cling to the caregiver and then resist her by fighting against the closeness, perhaps by kicking or pushing away. In the Strange Situation, these babies often cling anxiously to the caregiver and don't explore the playroom. When the caregiver leaves, they often cry loudly and then push away if she tries to comfort them upon her return.
- **Insecure disorganized babies** are disorganized and disoriented. In the Strange Situation, these babies might appear dazed, confused, and fearful. To be classified as disorganized, babies must show strong patterns of avoidance and resistance or display certain specified behaviors, such as extreme fearfulness around the caregiver.



What is the nature of secure and insecure attachment?

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How Would You...?

As a **psychologist**, how would you identify an insecurely attached toddler? How would you encourage a parent to strengthen the attachment bond?

Do individual differences in attachment matter? Ainsworth proposed that secure attachment in the first year of life provides an important foundation for psychological

securely attached infant responds positively to being picked up by others and, when put back down, freely moves away to play. An insecurely attached infant, by contrast, avoids the caregiver or is ambivalent toward her, fears strangers, and is upset by minor, everyday separations.

If early attachment to a caregiver is important, it should relate to a child's social behavior later in development. For some children, early attachments seem to foreshadow later functioning (Frazier & Scharf, 2015; Gander & Buchheim, 2015; Marvin, Britner, & Russell, 2016; Mesman, van IJzendoorn, & Sagi-Schwartz, 2016; Sroufe, 2016). In an extensive longitudinal study conducted by Alan Sroufe and his colleagues (2005), early secure attachment (assessed by the behavior during the Strange Situation at 12 and 18 months) was linked with positive emotional health, high self-esteem, self-confidence, and socially competent interaction with peers, teachers, camp counselors, and romantic partners through adolescence. Also, a recent meta-analysis found that secure attachment in infancy was linked to social competence with peers in childhood (Groh & others, 2014). Further, a recent study revealed that infant attachment



To what extent might this adolescent girl's development be linked to how securely or insecurely attached she was during infancy?

(Top) © Westend61/Getty Images RF; (bottom) © iStockphoto.com/
Andrew Rich RF

insecure avoidant babies Babies that show insecurity by avoiding their mothers.

insecure resistant babies Babies that often cling to the caregiver, then resist her by fighting against the closeness, perhaps by kicking or pushing away.

insecure disorganized babies Babies that show insecurity by being disorganized and disoriented.

insecurity (especially insecure resistant attachment) and early childhood behavioral inhibition predicted adolescent social anxiety symptoms (Lewis-Morrarty & others, 2015).

Few studies have assessed infants' attachment security to the mother and the father separately. However, a recent study revealed that infants who were insecurely attached to their mother and father ("double-insecure") at 15 months of age had more externalizing problems (out-of-control behavior, for example) in the elementary school years than their counterparts who were securely attached to at least one parent (Kochanska & Kim, 2013).

An important issue regarding attachment is whether infancy is a critical or sensitive period for development. The studies just described show continuity, with secure attachment in infancy predicting subsequent positive development in childhood and adolescence. For some children, though, there is little continuity. Not all research reveals the power of infant attachment to predict subsequent development (Hudson & others, 2016; Lamb & Lewis, 2015; Roisman & others, 2016; Thompson, 2015, 2016). In one longitudinal study, attachment classification in infancy did not predict attachment classification at 18 years of age (Lewis, Feiring, & Rosenthal, 2000). In this study, the best predictor of an insecure attachment classification at 18 was the occurrence of parental divorce in the intervening years. Consistently positive caregiving over a number of years is likely to be an important factor in connecting early attachment with the child's functioning later in development. Indeed, researchers have found that early secure attachment and subsequent experiences, especially maternal care and life stresses, are linked with children's later behavior and adjustment (Thompson, 2015, 2016). For example, a longitudinal study revealed that changes in attachment security/insecurity from infancy to adulthood were linked to stresses and supports in socioemotional contexts (Van Ryzin, Carlson, & Sroufe, 2011). These results suggest that attachment continuity may be a reflection of stable social contexts as much as early working models. The study just described (Van Ryzin, Carlson, & Sroufe, 2011) reflects an increasingly accepted view of the development of attachment and its influence on development. That is, it is important to recognize that attachment security in infancy does not always by itself produce long-term positive outcomes, but rather is linked to later outcomes through connections with the way children and adolescents subsequently experience various social contexts as they develop.

The Van Ryzin, Carlson, and Sroufe (2011) study reflects a **developmental cascade model**, which involves connections across domains over time that influence developmental pathways and outcomes (Cicchetti & Toth, 2015, 2016; Pasco-Fearon & others, 2016). Developmental cascades can include connections between a wide range of biological, cognitive, and socioemotional processes (attachment, for example), and also can involve social contexts such as families, peers, schools, and culture. Further, links can produce positive or negative outcomes at different points in development, such as infancy, early childhood, middle and late childhood, adolescence, and adulthood.

A recent meta-analysis supported the views just described (Pinquart, Feubner, & Ahnert, 2013). In this analysis of 127 research reports, the following conclusions were reached: (1) moderate stability of attachment security occurred from early infancy to adulthood; (2) no significant stability occurred for time intervals of more than 15 years; (3) attachment stability was greater when the time span was less than 2 years than when it was more than 5 years; and (4) securely attached children at risk were less likely to maintain attachment security while insecurely attached children at risk were likely to continue to be insecurely attached.

In addition to challenging whether secure attachment in infancy serves as a critical or sensitive period, some developmentalists argue that the secure attachment concept does not adequately consider certain biological factors in development, such as genes and temperament (Bakermans-Kranenburg & van IJzendoorn, 2016; Raby, Roisman, & Booth-Laforce, 2016; Simpson & Belsky, 2016; Vaughn & Bost, 2016). For example, Jerome Kagan (1987, 2002) points out that infants are highly resilient and adaptive; he argues that they are evolutionarily equipped to stay on a positive developmental course, even in the face of wide variations in parenting. Kagan and others stress that genetic characteristics and temperament play more important roles in a child's social competence than the attachment

developmental cascade model Involves connections across domains over time that influence developmental pathways and outcomes.



In the Hausa culture, siblings and grandmothers provide a significant amount of care for infants. *How might these variations in care affect attachment?*

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theorists, such as Bowlby and Ainsworth, are willing to acknowledge (Bakermans-Kranenburg & van IJzendoorn, 2011). For example, if some infants inherit a low tolerance for stress, this, rather than an insecure attachment bond, may be responsible for an inability to get along with peers. One study found links between disorganized attachment in infancy, a specific gene, and levels of maternal responsiveness (Spangler & others, 2009). In this study, infants with the short version of the gene—serotonin transporter gene 5-HTTLPR—developed a disorganized attachment style only when mothers were slow or inconsistent in responding to them. However, some researchers have not found support for gene-environment interactions related to infant attachment (Fraley & others, 2013; Roisman & Fraley, 2013).

Another criticism of attachment theory is that it ignores the diversity of socializing agents and contexts that exists in an infant's world. A culture's value system can influence the nature of attachment (Mistry, Contreras, & Dutta, 2013). In northern Germany, for example, expectations for an infant's independence may be responsible for infants showing little distress upon a brief separation from the mother, whereas the Japanese mother's motivation for extremely close proximity to her infant may explain why Japanese infants become upset when they are separated from the mother. Also, in some cultures infants show attachments to many people. Among the Hausa (who live in Nigeria), both grandmothers and siblings provide a significant amount of care

for infants (Harkness & Super, 1995). Infants in agricultural societies tend to form attachments to older siblings, who have major responsibility for their younger siblings' care. Researchers recognize the importance of competent, nurturant caregivers in an infant's development (Cicchetti & Toth, 2015, 2016; Grusec & Davidov, 2015). At issue, though, is whether or not secure attachment, especially to a single caregiver, is essential (Lamb & Lewis, 2015; Roisman & others, 2016; Thompson, 2015, 2016).

Despite such criticisms, there is ample evidence that security of attachment is important to development (Cassidy, 2016; Groh & others, 2014; Powell & others, 2014; Marvin, Britner, & Russell, 2016; Sroufe, 2016; Thompson, 2014, 2015, 2016). Secure attachment in infancy is important because it reflects a positive parent-infant relationship and provides a foundation that supports healthy socioemotional development in the years that follow.

Caregiving Styles and Attachment

Is the style of caregiving linked with the quality of the infant's attachment? Securely attached babies have caregivers who are sensitive to their signals and are consistently available to respond to the infant's needs (Pasco-Fearon & Belsky, 2016; Powell & others, 2014). These caregivers often let their babies take an active part in determining the onset and pacing of interactions in the first year of life. A recent study of 130 mother-infant dyads when infants were 7 months to 2 years of age found that maternal sensitivity and autonomy support predicted secure attachment (Bernier & others, 2014).

How do the caregivers of insecurely attached babies interact with them? Caregivers of avoidant babies tend to be unavailable or rejecting. They often don't respond to their babies' signals and have little physical contact with them. When they do interact with their babies, they may behave in an angry and irritable way. Caregivers of resistant babies tend to be inconsistent; sometimes they respond to their babies' needs, and sometimes they don't. In general, they tend not to be very affectionate with their babies and show little synchrony when interacting with them. Caregivers of disorganized babies often neglect or physically abuse them (Cicchetti & Toth, 2016).



How Would You...?

As a health-care professional, how would you use an infant's attachment style and/or a parent's caregiving style to determine whether an infant may be at risk for neglect or abuse?

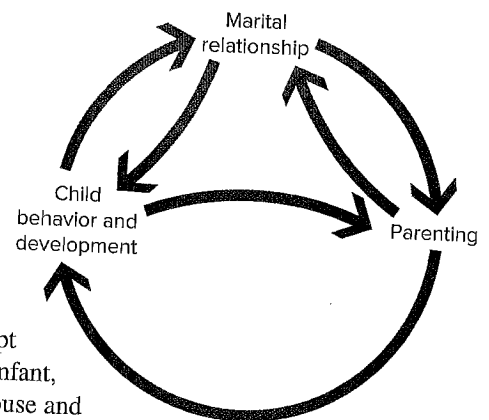
Social Contexts

Now that we have explored the infant's emotional and personality development and attachment, let's examine the social contexts in which these occur. We begin by studying a number of aspects of the family and then turn to a social context in which infants increasingly spend time: child care.

The Family

The family can be thought of as a constellation of subsystems—a complex whole made up of interrelated, interacting parts—defined in terms of generation, gender, and role. Each family member participates in several subsystems (Parfitt, Pike, & Ayers, 2014). The father and child represent one subsystem, the mother and father another; the mother, father, and child represent yet another; and so on.

These subsystems have reciprocal influences on each other, as Figure 6 highlights (Maccoby, 2015). For example, Jay Belsky (1981) stresses that marital relations, parenting, and infant behavior and development can have both direct and indirect effects on each other. An example of a direct effect is the influence of the parents' behavior on the child. An indirect effect is how the relationship between the spouses mediates the way a parent acts toward the child. For example, marital conflict might reduce the efficiency of parenting, in which case marital conflict would indirectly affect the child's behavior (Cummings, Koss, & Cheung, 2015). The simple fact that two people are becoming parents may have profound effects on their relationship.



The Transition to Parenthood

Whether people become parents through pregnancy, adoption, or stepparenting, they face disequilibrium and must adapt to it. Parents want to develop a strong attachment with their infant, but they also want to maintain strong attachments to their spouse and friends, and possibly to continue their careers. Parents ask themselves how this new being will change their lives. A baby places new restrictions on partners; no longer will they be able to rush out to a movie at a moment's notice, and money may not be readily available for vacations and other luxuries. Dual-career parents ask, "Will it harm the baby to place her in child care? Will we be able to find responsible baby-sitters?"

In a longitudinal investigation of couples from late pregnancy until 3 years after the baby was born, couples enjoyed more positive marital relations before the baby was born than afterward (Cowan & Cowan, 2000; Cowan & others, 2005). Still, almost one-third reported an increase in marital satisfaction. Some couples said that the baby had both brought them closer together and moved them farther apart; being parents enhanced their sense of themselves and gave them a new, more stable identity as a couple. Babies opened men up to greater concern with intimate relationships, and the demands of juggling work and family roles stimulated women to manage family tasks more efficiently and pay attention to their own personal growth. The Bringing Home Baby project is a workshop for new parents that emphasizes strengthening their relationship with each other, understanding and becoming acquainted with their baby, resolving conflict, and developing parenting skills (Gottman, 2016). Evaluations of the project revealed that parents who participated became better able to work together as parents; fathers were more involved with their baby and sensitive to the baby's

Figure 6
Interaction
Between Children
and Their
Parents: Direct
and Indirect
Effects

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behavior; mothers had fewer symptoms of postpartum depression; and babies showed better overall development than was the case among parents and babies in a control group (Gottman, Gottman, & Shapiro, 2009).

Other recent studies have explored the transition to parenthood (Ferriby & others, 2015). One study revealed that mothers experienced unmet expectations in the transition to parenting, with fathers doing less than their partners had anticipated (Biehle & Mickelson, 2012). And in a recent study of dual-earner couples, a gender gap was not present prior to the transition to parenthood, but after a child was born, women did more than 2 hours of additional work per day compared with an additional 40 minutes for men (Yavorksy, Dush, & Schoppe-Sullivan, 2015).

Reciprocal Socialization

For many years, socialization was viewed as a one-way process: Children were considered to be the products of their parents' socialization techniques. According to more recent



Caregivers often play games with infants such as peek-a-boo and pat-a-cake.

How is scaffolding involved in these games?

(Left) © BrandXPictures/PunchStock RF; (right) © Stephanie Rausser/The Image Bank/Getty Images

research, however, parent-child interaction is reciprocal (Nishamura, Kanakogi, & Myowa-Yamakoshi, 2016).

Reciprocal socialization is socialization that is bidirectional. That is, children socialize their parents just as parents socialize their children (Maccoby, 2015). The types of behaviors involved in reciprocal socialization in infancy are temporally connected, mutually contingent behaviors such as one partner imitating the sound of another or the mother responding with a vocalization to the baby's arm

movements. These reciprocal interchanges and mutual influence processes are sometimes referred to as *transactional* (Sameroff, 2009, 2012).

An important form of reciprocal socialization is **scaffolding**, in which parents time interactions in such a way that the infant experiences turn-taking with the parents. Scaffolding can be used to support children's efforts at any age.

The game peek-a-boo, in which parents initially cover their babies, then remove the covering, and finally register "surprise" at the babies' reappearance, reflects the concept of scaffolding. As infants become more skilled at this game, they gradually do some of the covering and uncovering themselves. Parents try to time their actions in such a way that the infant takes turns with the parent.

Increasingly, genetic and epigenetic factors are being studied to discover not only parental influences on children but also children's influence on parents (Avinun & Knafo-Noam, 2015; Bakermans-Kranenburg & van IJzendoorn, 2016). Recall that the *epigenetic view* emphasizes that development is the result of an ongoing, bidirectional

interchange between heredity and the environment (Moore, 2015). For example, harsh, hostile parenting is associated with negative outcomes for children, such as being defiant and oppositional (Deater-Deckard, 2013). This likely reflects bidirectional influences rather than a unidirectional parenting effect. That is, the parents' harsh, hostile parenting and the children's defiant, oppositional behavior may mutually influence each other. In this bidirectional influence, the parents' and children's behavior may have genetic linkages as well as experiential connections.

How Would You...?

As an **educator**, how would you explain the value of games and the role of scaffolding in the development of infants and toddlers?



reciprocal socialization Socialization that is bidirectional, meaning that children socialize parents, just as parents socialize children.

scaffolding Process in which parents time interactions so that infants experience turn-taking with their parents.

Managing and Guiding Infants' Behavior

In addition to sensitive parenting involving warmth and caring that can result in infants being securely attached to their parents, other important aspects of parenting infants involve managing and guiding their behavior in an attempt to reduce or eliminate undesirable behaviors (Holden, Vittrup, & Rosen, 2011). This management process includes (1) being proactive and childproofing the environment so infants won't encounter potentially dangerous objects or situations, and (2) engaging in corrective methods when infants engage in undesirable behaviors, such as excessive fussing and crying, throwing objects, and so on.

One study assessed discipline and corrective methods that parents had used by the time their infants were 12 and 24 months old (Vittrup, Holden, & Buck, 2006) (see Figure 7). Notice in Figure 7 that the main method parents used by the time infants were 12 months old was diverting the infants' attention, followed by reasoning, ignoring, and negotiating. Also note in Figure 7 that more than one-third of parents had yelled at their infant, about one-fifth had slapped the infant's hands or threatened the infant, and approximately one-sixth had spanked the infant by their first birthday.

As infants move into the second year of life and become more mobile and capable of exploring a wider range of environments, parental management of the toddler's behavior often triggers increased corrective feedback and discipline (Holden, Vittrup, & Rosen, 2011). As indicated in Figure 7, in the study just described, yelling increased from 36 percent at 1 year of age to 81 percent by 2 years of age, slapping the infant's hands increased from 21 percent at 1 year to 31 percent by age 2, and spanking increased from 14 percent at age 1 to 45 percent by age 2 (Vittrup, Holden, & Buck, 2006).

A special concern is that such corrective discipline tactics not become abusive. Too often what starts out as mild to moderately intense discipline on the part of parents can move into highly intense anger. Later, you will read more extensively about the use of punishment with children and child maltreatment.

Maternal and Paternal Caregiving

Much of our discussion of attachment has focused on mothers as caregivers. Do mothers and fathers differ in their caregiving roles? In general, mothers on average still spend considerably more time in caregiving with infants and children than do fathers (Blakemore, Berenbaum, & Liben, 2009). Mothers especially are more likely to engage in the managerial role with their children, coordinating their activities, making sure their health-care needs are met, and so on (Clarke-Stewart & Parke, 2014).

However, an increasing number of U.S. fathers stay home full-time with their children (Dette-Hagenmeyer, Erzinger, & Reichle, 2016; Lamb & Lewis, 2016). The number of stay-at-home dads in the United States was estimated to be two million in 2012 (Livingston, 2014). This figure represents a significant increase from 1.6 million in 2004 and 1.1 million in 1989.

A large portion of these full-time fathers have career-focused wives who are the primary providers of family income (O'Brien & Moss, 2010). One study revealed that the stay-at-home fathers were as satisfied with their marriage as traditional parents, although they indicated that they missed their daily life in the workplace (Rochlen & others, 2008). In this study, the stay-at-home fathers reported that they tended to be ostracized when they took their children to playgrounds and often were excluded from parent groups.

Method	12 Months	24 Months
Spank with hand	14	45
Slap infant's hand	21	31
Yell in anger	36	81
Threaten	19	63
Withdraw privileges	18	52
Time-out	12	60
Reason	85	100
Divert attention	100	100
Negotiate	50	90
Ignore	64	90

Figure 7 Parents' Methods for Managing and Correcting Infants' Undesirable Behavior

Shown here are the percentages of parents who had used various corrective methods by the time the infants were 12 and 24 months old.

Source: Vittrup, Holden, & Buck (2006).



An Aka pygmy father with his infant son. In the Aka culture, fathers were observed to be holding or near their infants 47 percent of the time (Hewlett, 1991).

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Observations of fathers and their infants suggest that fathers have the ability to act as sensitively and responsively with their infants as mothers do (Lamb & Lewis, 2016). Consider the Aka pygmy culture in Africa, in which fathers spend as much time interacting with their infants as mothers do (Hewlett, 1991, 2000; Hewlett & MacFarlan, 2010). A recent study also found that marital intimacy and partner support during prenatal development were linked to father-infant attachment following childbirth (Yu & others, 2012). Remember, however, that although fathers can be active, nurturant, involved caregivers, as in the case of Aka pygmies, in many cultures men have not chosen to follow this pattern.

Do fathers interact with their infants differently from the way mothers do? Maternal interactions usually center on child-care activities—feeding, changing diapers, and bathing. Paternal interactions are more likely to include play, especially rough-and-tumble play (Lamb & Lewis, 2016). Fathers bounce infants, throw them up in the air, tickle them, and so on. Mothers also play with their infants, but their play is less physical and exciting than that of fathers.

Do children benefit when fathers are positively involved in their caregiving? A study of more than 7,000 children who were assessed from infancy to adulthood revealed that those whose fathers were extensively involved in their lives (such as engaging in various activities with them and showing a strong interest in their education) were more successful in school (Flouri & Buchanan, 2004). However, if fathers have mental health problems, they may not interact as effectively with their infants. A recent study revealed that depressed fathers focused more on their own needs than their infants' needs, and directed more negative and critical speech toward their infants (Sethna, Murray, & Ramchandani, 2012). Further, a recent study found that infants who showed a higher level of externalizing, disruptive problems at 1 year of age had fathers who displayed a low level of engagement with them as early as the third month of life (Ramchandani & others, 2013). And a recent study revealed that both fathers' and mothers' sensitivity assessed when infants were 10 to 12 months old were linked to children's cognitive development at 18 months and language development at 36 months (Malmberg & others, 2016).

Child Care

Many U.S. children today experience multiple caregivers. Most do not have a parent staying home to care for them; instead, the children receive "child care"—that is, some type of care provided by others. Many parents worry that child care will have adverse effects such as reducing their infants' emotional attachment to them, constraining their cognitive development, failing to teach them how to control anger, or allowing them to be unduly influenced by their peers. Are these concerns justified?

In the United States, approximately 15 percent of children age 5 and younger experience more than one child-care arrangement. One study of 2- and 3-year-old children revealed that an increase in the number of child-care arrangements the children experienced was linked to an increase in behavioral problems and a decrease in prosocial behavior (Morrissey, 2009).

Parental Leave

Today far more young children are in child care than at any other time in U.S. history. About 2 million children in the United States currently receive formal, licensed child care, and uncounted millions of children are cared for by unlicensed baby-sitters.



How are child-care policies in many European countries, such as Sweden, different from those in the United States?
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In part, these numbers reflect the fact that many U.S. adults do not receive paid leave from their jobs to care for their young children. Child-care policies around the world vary (Burchinal & others, 2015). Europe has led the way in creating new standards of parental leave: In 1992, the European Union (EU) mandated a paid 14-week maternity leave. In most European countries today, working parents on leave receive 70 to 100 percent of the worker's prior wage, and paid leave averages about 16 weeks (Tolani & Brooks-Gunn, 2008). The United States currently allows up to 12 weeks of unpaid leave for parents who are caring for a newborn.

Most countries restrict eligible benefits to women who have been employed for a minimum length of time prior to childbirth. In Denmark, however, even unemployed mothers are eligible for extended parental leave related to childbirth. In Germany, child-rearing leave is available to almost all parents. The Nordic countries (Denmark, Norway, and Sweden) have extensive gender-equity family leave policies for childbirth that emphasize the contributions of both women and men. For example, in Sweden parents can take an 18-month, job-protected parental leave with benefits to be shared by parents and applied to full-time or part-time work.

Variations in Child Care

Because the United States does not have a policy of paid leave for child care, child care in the United States has become a major national concern (Lamb & Lewis, 2015). Many factors influence the effects of child care, including the age of the child, the type of child care, and the quality of the program.

The type of child care varies extensively (Burchinal & others, 2015; Hasbrouck & Pianta, 2016; Shivers & Farago, 2016). Child care is provided in large centers with elaborate facilities and in private homes. Some child-care centers are commercial operations; others are nonprofit centers run by churches, civic groups, and employers. Some child-care providers are professionals; others are untrained adults who want to earn extra money. Infants and toddlers are more likely to be found in family child care and informal care settings, while older children are more likely to be in child-care centers and preschool and early education programs. Figure 8 presents the primary care arrangements for U.S. children under age 5 with employed mothers (Clarke-Stewart & Miner, 2008).

Child-care quality makes a difference (Howes, 2016; Sanders & Guerra, 2016; Vu, 2016). A recent Australian study revealed that higher-quality child care that included positive child-caregiver relationships at 2 to 3 years of age was linked to children's better self-regulation of attention and emotion at 4 to 5 and 6 to 7 years of age (Gialamas & others, 2014). What constitutes a high-quality child-care program for infants? In high-quality child care (Clarke-Stewart & Miner, 2008, p. 273):

Caregivers encourage the children to be actively engaged in a variety of activities, have frequent, positive interactions that include smiling, touching, holding, and speaking at the child's eye level, respond properly to the child's questions or requests, and encourage children to talk about their experiences, feelings, and ideas.

High-quality child care also involves providing children with a safe environment, access to age-appropriate toys and participation in age-appropriate activities, and a low caregiver-child ratio that allows caregivers to spend considerable time with children on an individual basis.

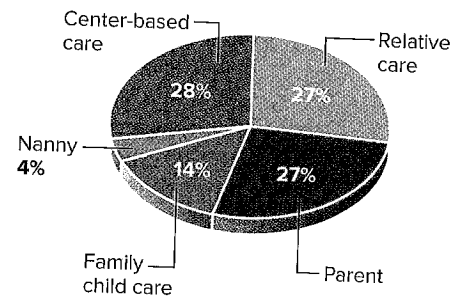


Figure 8 Primary Care Arrangements in the United States for Children Under 5 Years of Age with Employed Mothers

Children are more likely to experience poor-quality child care if they come from families with few resources (psychological, social, and economic) (Carta & others, 2012). Many researchers have examined the role of poverty in quality of child care. One study found that extensive child care was harmful to low-income children only when the care was of low quality (Votruba-Drzal, Coley, & Chase-Lansdale, 2004). Even if the child was in child care more than 45 hours a week, high-quality care was associated with fewer internalizing problems (anxiety, for example) and externalizing problems (aggressive and destructive behaviors, for example). A recent study revealed that children from low-income families benefited in terms of school readiness and language development when their parents selected higher-quality child care (McCartney & others, 2007).

To read about one individual who provides quality child care to individuals from impoverished backgrounds, see *Careers in Life-Span Development*.

How Would You...?

As an **educator**, how would you design the ideal child-care program to promote optimal infant development?



Careers in life-span development

Wanda Mitchell, Child-Care Director

Wanda Mitchell is the Center Director at the Hattie Daniels Day Care Center in Wilson, North Carolina. Her responsibilities include directing the operation of the center, which involves creating and maintaining an environment in which young children can learn effectively, and ensuring that the center meets state licensing requirements. Wanda obtained her undergraduate degree from North Carolina A&T University, majoring in Child Development. Prior to her current position, she had been an education coordinator for Head Start and an instructor at Wilson Technical Community College. Describing her chosen career, Wanda says, "I really enjoy working in my field. This is my passion. After graduating from college, my goal was to advance in my field."



Wanda Mitchell, child-care director, works with some of the children at her center.

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The National Longitudinal Study of Child Care

In 1991, the National Institute of Child Health and Human Development (NICHD) began a comprehensive longitudinal study of child-care experiences. Data were collected from a diverse sample of almost 1,400 children and their families at 10 locations across the United States over a period of seven years. Researchers used multiple methods (trained observers, interviews, questionnaires, and testing) and measured many facets of children's development, including physical health, cognitive development, and socioemotional development. Following are some of the results of what is now referred to as the NICHD Study of Early Child Care and Youth Development or NICHD SECCYD (NICHD Early Child Care Research Network, 2001, 2002, 2003, 2004, 2005, 2006, 2010).

- **Quality of care.** Evaluations of quality of care were based on characteristics such as group size, child-adult ratio, physical environment, caregiver characteristics (such as formal education, specialized training, and child-care experience), and caregiver behavior (such as sensitivity to children). An alarming conclusion is that a majority of the child care in the first three years of life was of unacceptably low quality. Positive caregiving by nonparents in child-care settings was infrequent—only 12 percent of the children in the study experienced positive nonparental child care (such as positive talk and language stimulation). Further, infants

from low-income families experienced lower-quality child care than did infants from higher-income families. When quality of caregivers' care was high, children performed better on cognitive and language tasks, were more cooperative with their mothers during play, showed more positive and skilled interaction with peers, and had fewer behavior problems. Caregiver training and favorable child-staff ratios were linked with higher cognitive and social competence when children



were 54 months of age. In research involving the NICHD sample, links were found between nonrelative child care from birth to 4 years of age and adolescent development at 15 years of age (Vandell & others, 2010). In this analysis, better quality of early care was related to a higher level of academic achievement and a lower level of externalizing problems at age 15. In a recent study, high-quality infant-toddler child care was linked to better memory skills at the end of the preschool years (Li & others, 2013).

What are some important findings from the national longitudinal study of child care conducted by the National Institute of Child Health and Human Development?

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- *Amount of child care.* The quantity of child care predicted some outcomes (Vandell & others, 2010). When children spent extensive amounts of time in child care beginning in infancy, they experienced fewer sensitive interactions with their mothers, showed more behavior problems, and had higher rates of illness. In general, when children spent 30 hours or more per week in child care, their development was less than optimal. However, a recent study in Norway (a country that meets or exceeds 8 of 10 UNICEF benchmarks for quality child care) revealed that a high quantity of child care there was not linked to children's externalizing problems (Zachrisson & others, 2013).
- *Family and parenting influences.* The influence of families and parenting was not weakened by extensive child care. Parents played a significant role in helping children regulate their emotions. Especially important parenting influences were being sensitive to children's needs, being involved with children, and providing cognitive stimulation. Indeed, parental sensitivity has been the most consistent predictor of secure attachment (Friedman, Melhuish, & Hill, 2010). An important final point about the extensive NICHD SECCYD research is that findings have consistently shown that family factors are considerably stronger and more consistent predictors of a wide variety of child outcomes than are child-care experiences (quality, quantity, type). The worst outcomes for children occur when both home and child-care settings are of poor quality. For example, a recent study involving the NICHD SECCYD data revealed that worse socioemotional outcomes (more problem behavior, lower levels of prosocial behavior) for children occurred when they experienced both home and child-care environments that conferred risk (Watanabe & others, 2011).

What are some strategies parents can follow in regard to child care? Child-care expert Kathleen McCartney (2003, p. 4) offers this advice:

- *Recognize that the quality of your parenting is a key factor in your child's development.*
- *Make decisions that will improve the likelihood that you will be good parents.* "For some this will mean

How Would You...?

As a **psychologist**, based on the findings from the NICHD study, how would you advise parents about their role in their child's development versus the role of non-parental child care?



working full-time”—for personal fulfillment, income, or both. “For others, this will mean working part-time or not working outside the home.”

- *Monitor your child’s development.* “Parents should observe for themselves whether their children seem to be having behavior problems.” They should also talk with child-care providers and their pediatrician about their child’s behavior.
- *Take some time to find the best child care.* Observe different child-care facilities and be certain that you like the one you choose. “Quality child care costs money, and not all parents can afford the child care they want.”

Summary

Emotional and Personality Development

- Emotion is feeling, or affect, that occurs when a person is in a state or an interaction that is important to them. Infants display a number of emotions early in their development, such as by crying, smiling, and showing fear. Two fears that infants develop are stranger anxiety and fear of separation from a caregiver. As infants develop, it is important for them to increase their ability to regulate their emotions.
- Temperament is an individual’s behavioral style and characteristic way of responding emotionally. Chess and Thomas classified infants as (1) easy, (2) difficult, or (3) slow to warm up. Kagan proposed that inhibition to the unfamiliar is an important temperament category. Rothbart and Bates emphasized that effortful control (self-regulation) is an important temperament dimension. Goodness of fit can be an important aspect of a child’s adjustment.
- Erikson argued that an infant’s first year is characterized by the stage of trust versus mistrust. Independence becomes a central theme in the second year of life, which is characterized by the stage of autonomy versus shame and doubt.

Social Orientation and Attachment

- Infants show a strong interest in the social world and are motivated to understand it. Infants are more socially

sophisticated and insightful at an earlier age than was previously thought.

- Attachment is a close emotional bond between two people. In infancy, contact comfort and trust are important in the development of attachment. Securely attached babies use the caregiver, usually the mother, as a secure base from which to explore their environment. Three types of insecure attachment are avoidant, resistant, and disorganized. Caregivers of securely attached babies are more sensitive to the babies’ signals and are consistently available to meet their needs.

Social Contexts

- The transition to parenthood requires considerable adaptation and adjustment on the part of parents. Children socialize parents just as parents socialize children. Parents use a wide range of methods to manage and guide infants’ behavior. In general, mothers spend more time in caregiving than fathers do; fathers tend to engage in more physical, playful interaction with infants than mothers do.
- The quality of child care is uneven, and child care remains a controversial topic. Quality child care can be achieved and seems to have few adverse effects on children.

Key Terms

anger cry
attachment

basic cry

developmental cascade model

difficult child

easy child

emotion

goodness of fit

insecure avoidant babies

insecure disorganized babies

insecure resistant babies

pain cry

reciprocal socialization

reflexive smile

scaffolding

securely attached babies

separation protest

slow-to-warm-up child

social referencing

social smile

Strange Situation

stranger anxiety

temperament

5 Physical and Cognitive Development in Early Childhood

CHAPTER OUTLINE

PHYSICAL CHANGES

- Body Growth and Change
- The Brain
- Motor Development
- Nutrition and Exercise
- Illness and Death

COGNITIVE CHANGES

- Piaget's Preoperational Stage
- Vygotsky's Theory
- Information Processing

LANGUAGE DEVELOPMENT

- Understanding Phonology and Morphology
- Changes in Syntax and Semantics
- Advances in Pragmatics
- Young Children's Literacy

EARLY CHILDHOOD EDUCATION

- Variations in Early Childhood Education
- Education for Young Children Who Are Disadvantaged
- Controversies in Early Childhood Education

Stories of Life-Span Development: Reggio Emilia's Children

The Reggio Emilia approach is an educational program for young children that was developed in the northern Italian city of Reggio Emilia. Children of single parents and children with disabilities have priority in admission; other children are admitted according to a scale of needs. Parents pay on a sliding scale based on income.

The children are encouraged to learn by investigating and exploring topics that interest them (Bredekamp, 2017). A wide range of stimulating media and materials are available for children to use as they learn music, movement, drawing, painting, sculpting, collage, puppetry, and photography, among other things (Bond, 2015).

In this program, children often explore topics in a group, which fosters a sense of community, respect for diversity, and a collaborative approach to problem solving (Jones & Reynolds, 2011). In this group setting, two co-teachers guide the children in their exploration. The Reggio Emilia teachers treat each project as an adventure. It can start from an adult's suggestion, from a child's idea, or from an unexpected event such as a snowfall. Every project is based on what the children say and do. The teachers allow children enough time to plan and craft a project.

At the core of the Reggio Emilia approach is an image of children who are competent and have rights, especially the right to outstanding care and education. Parent participation



In a Reggio Emilia classroom, young children explore topics that interest them.

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is considered essential, and cooperation is a major theme in the schools. Many experts on early childhood education believe that the Reggio Emilia approach provides a supportive, stimulating context in which children are motivated to explore their world in a competent and confident manner (Morrison, 2017; Vatalaro, Szente, & Levin, 2015).

Parents and educators who clearly understand how young children develop can play an active role in creating programs that foster their natural interest in learning, rather than stifling it. In this chapter, the first of two chapters on early childhood (ages 3 to 5), we explore the physical, cognitive, and language

changes that typically occur as the toddler develops into the preschooler, and then we look at early childhood education. ■

Physical Changes

Earlier, we described a child's growth in infancy as rapid and following cephalocaudal and proximodistal patterns. Fortunately, the growth rate slows in early childhood; otherwise, we would be a species of giants.

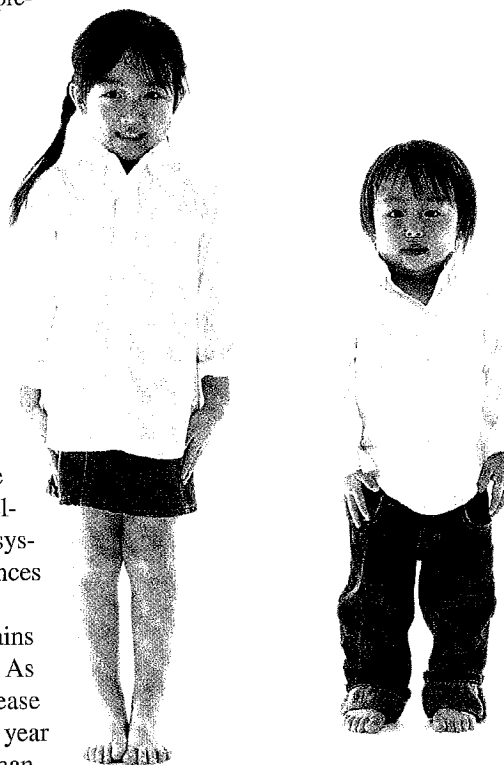
Body Growth and Change

Despite the slowing of growth in height and weight that characterizes early childhood, this growth is still the most obvious physical change during this period of development. Yet unseen changes in the brain and nervous system are no less significant in preparing children for advances in cognition and language.

The average child grows 2½ inches in height and gains between 5 and 7 pounds a year during early childhood. As the preschool child grows older, the percentage of increase in height and weight decreases with each additional year (Goldstone & Reynolds, 2014; Marcante & Kliegman, 2015). Girls are only slightly smaller and lighter than boys during these years, a difference that continues until puberty. In addition, girls have more fatty tissue than boys, and boys have more muscle tissue than girls.

During the preschool years, both boys and girls slim down as the trunk of the body lengthens (Kliegman & others, 2016). Although the head is still somewhat large for the body, by the end of the preschool years most children have lost the top-heavy look they had as toddlers. Body fat also shows a slow, steady decline during the preschool years. The chubby baby often looks much leaner by the end of early childhood.

Growth patterns vary from one individual to another (Ball, Bindler, & Cowen, 2014). Think back to your preschool years. That was probably the first time you noticed that some children were taller than you, some shorter; some were fatter, some thinner; some were stronger, some weaker. Much of the variation was due to heredity, but environmental experiences were also involved (Barstow & Rerucha, 2015). A review of the height and weight of children around the world concluded that the two most important contributors to height differences are ethnic origin and nutrition (Meredith, 1978). Urban, middle-socioeconomic status, and firstborn children were taller than rural, lower-socioeconomic status, and later-born children. In the United States, African American children are also taller than White children.

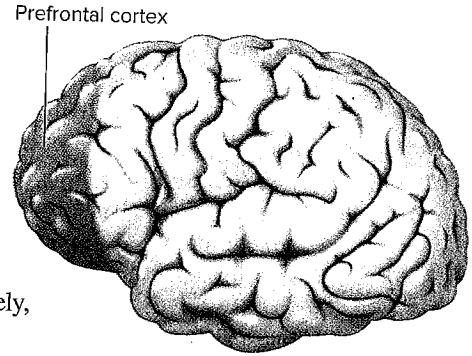


The bodies of 5-year-olds and 2-year-olds are different. Notice that the 5-year-old not only is taller and weighs more, but also has a longer trunk and legs than the 2-year-old. *Can you think of some other physical differences between 2- and 5-year-olds?*

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The Brain

One of the most important physical developments during early childhood is the continuing development of the brain and other parts of the nervous system (Bell & Cuevas, 2015). The increasing maturation of the brain, combined with opportunities to experience a widening world, contribute to children's emerging cognitive abilities. In particular, changes in the brain during early childhood enable children to plan their actions, attend to stimuli more effectively, and make considerable strides in language development.



Although the brain does not grow as rapidly during early childhood as in infancy, it does undergo remarkable changes. By repeatedly obtaining brain scans of the same children for up to four years, researchers have found that children's brains experience rapid, distinct spurts of growth (Gogtay & Thompson, 2010). The overall size of the brain does not increase dramatically from ages 3 to 5; what does change dramatically are local patterns within the brain. The amount of brain material in some areas can nearly double in as little as a year, followed by a dramatic loss of tissue as unneeded cells are pruned and the brain continues to reorganize itself. From 3 to 6 years of age the most rapid growth in the brain takes place in the part of the frontal lobes known as the *prefrontal cortex* (see Figure 1), which plays a key role in planning and organizing new actions and maintaining attention to tasks (Gogtay & Thompson, 2010).

The continuation of two changes that began before birth contributes to the brain's growth during early childhood. First, the number and size of dendrites increase, and second, myelination continues. Recall that **myelination** is the process through which axons (nerve fibers that carry signals away from the cell body) are covered with a layer of fat cells, which increases the speed and efficiency of information traveling through the nervous system. Myelination is important in the development of a number of abilities (Croteau-Chonka & others, 2016). For example, myelination in the areas of the brain related to hand-eye coordination is not complete until about age 4. Myelination in the areas of the brain related to focusing attention is not complete until the end of middle or late childhood. And myelination of many aspects of the prefrontal cortex, especially those involving higher-level thinking skills, is not completed until late adolescence or emerging adulthood (Casey, 2015; de Haan & Johnson, 2016; Galvan & Tottenham, 2016; Monahan & others, 2016). In a recent study, young children with higher cognitive ability showed increased myelination by 3 years of age (Deoni & others, 2016).

Recently, researchers have found that contextual factors such as poverty and parenting quality are linked to the development of the brain (Meyer & others, 2015). In one study, children from the poorest homes had significant maturational lags in their frontal and temporal lobes at 4 years of age, and these lags were associated with lower school readiness skills (Hair & others, 2015). In another study, higher levels of maternal sensitivity in early childhood were associated with higher total brain volume (Kok & others, 2015).

Figure 1 The Prefrontal Cortex

The brain pathways and circuitry involving the prefrontal cortex (shaded in purple) show significant advances in development during middle and late childhood. *What cognitive processes are linked with these changes in the prefrontal cortex?*

Motor Development

Running as fast as you can, falling down, getting right back up and running just as fast as you can . . . building towers with blocks . . . scribbling, scribbling, and scribbling some more . . . cutting paper with scissors . . . During your preschool years, you probably developed the ability to perform all these activities. What physical changes made this possible?

Gross Motor Skills

The preschool child no longer has to make an effort simply to stay upright and move around. As children move their legs with more confidence and carry themselves more purposefully, moving around in the environment becomes more automatic (Ball, Bindler, & Cowen, 2014).

myelination The process by which axons are covered and insulated with a layer of fat cells, which increases the speed at which information travels through the nervous system.

Around age 3, children enjoy simple movements such as hopping, jumping, and running back and forth, just for the sheer delight of performing them. They delight in showing how they can run across a room and jump all of 6 inches. The run-and-jump will win no Olympic medals, but for the 3-year-old it brings considerable pride and a sense of accomplishment.

At age 4, children are still enjoying the same kinds of activities, but they have become more adventurous. They scramble over low jungle gyms as they display their athletic prowess. Although they have been able to climb stairs with one foot on each step for some time, they are just beginning to be able to come down the same way.

By age 5, children are even more adventuresome than when they were 4. It is not unusual for self-assured 5-year-olds to perform hair-raising stunts on playground equipment. Five-year-olds also run hard and enjoy races with each other and their parents.

Fine Motor Skills

By the time they turn 3, children have had the ability to pick up the tiniest objects between their thumb and forefinger for some time, but they are still somewhat clumsy at it. Three-year-olds can build surprisingly high block towers, each block placed with intense concentration but often not in a completely straight line. When 3-year-olds play with a simple jigsaw puzzle, they are rather rough in placing the pieces. Even when they recognize the hole a piece fits into, they are not very precise in positioning the piece. They often try to force the piece into the hole or pat it vigorously.

By age 4, children's fine motor coordination has improved substantially and is much more precise. Sometimes 4-year-olds have trouble building high towers with blocks because, in their desire to place each of the blocks perfectly, they may upset those already in the stack. Fine motor coordination continues to improve so that by age 5, hand, arm, and body all move together under better command of the eye. Mere towers no longer interest the 5-year-old, who now wants to build a house or a church, complete with steeple, though adults might still need to be told what each finished project is meant to be.

Nutrition and Exercise

Eating habits are important aspects of development during early childhood (Blake, 2017; Sorte, Daeschel, & Amador, 2017). What children eat affects their skeletal growth, body shape, and susceptibility to disease. Exercise and physical activity are also very important aspects of young children's lives (Powers & Dodd, 2017; Wuest & Fisette, 2015).



What are some trends in the eating habits and weight of young children?

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Overweight Young Children

Being overweight has become a serious health problem in early childhood (Hutchinson, Emerick, & Saxena, 2016; Xue & Xue, 2016). A national study revealed that 45 percent of children's meals exceed recommendations for saturated and trans fat, which can raise cholesterol levels and increase the risk of heart disease (Center for Science in the Public Interest, 2008). This study also found that one-third of children's daily caloric intake comes from restaurants, twice the percentage consumed away from home in the 1980s. Further, 93 percent of almost 1,500 possible choices at 13 major fast-food chains exceeded

430 calories—one-third of what the National Institute of Medicine recommends that 4- to 8-year-old children consume in a day. Nearly all of the children's meal offerings at KFC, Taco Bell, Sonic, Jack in the Box, and Chick-fil-A were too high in calories. Also, a study of U.S. 2- and 3-year-olds found that French fries and other fried potatoes were the vegetable they were most likely to consume (Fox & others, 2010).



How Would You...?

As a **health-care professional**, how would you work with parents to increase the nutritional value of meals and snacks they provide to their young children?

Young children's eating behavior is strongly influenced by their caregivers' behavior (Jarman & others, 2015; Sorte, Daeschel, & Amador, 2017; Tan & Holub, 2015). Children's eating behavior improves when caregivers eat with children on a predictable schedule, model eating healthy food, make mealtimes pleasant occasions, and engage in certain feeding styles (Silva Garcia & others, 2016; Steinsbekk, Belsky, & Wichstrom, 2016).

Distractions created by television, family arguments, and competing activities should be minimized so that children can focus on eating. Experts recommend a sensitive, responsive caregiver feeding style, in which the caregiver is nurturant, provides clear information about what is expected, and responds appropriately to children's cues (Black & Lozoff, 2008). Forceful and restrictive caregiver behaviors are not recommended, as they can lead to excessive weight gain (Micaly & others, 2016; Rollins & others, 2016).

The Centers for Disease Control and Prevention (2016) has categories for obesity, overweight, and at risk for being overweight. These categories are determined by body mass index (BMI), which is computed using a formula that takes into account height and weight. Children and adolescents at or above the 97th percentile are classified as obese; those at the 95th or 96th percentile as overweight; and those from the 85th to the 94th percentile as at risk of being overweight.

The percentages of young children who are overweight or at risk of being overweight in the United States have increased dramatically in recent decades, but in the last several years there are indications that fewer preschool children are obese (Wardlaw, Smith, & Collene, 2015). In 2009–2010, 12.1 percent of U.S. 2- to 5-year-olds were classified as obese, compared with 5 percent in 1976–1980 and 10.4 percent in 2007–2008 (Ogden & others, 2012). However, in 2011–2012, a substantial drop (43 percent) in the obesity rate of 2- to 5-year-old children occurred in comparison with their counterparts in 2003–2004 (Ogden & others, 2014). In 2011–2012, 8 percent of 2- to 5-year-olds were obese compared with 14 percent in 2004. It is not clear why this drop occurred, but among the possible explanations are families buying lower-calorie foods and being influenced by the Special Supplementation Program for Women, Infants, and Children (which subsidizes food for women and children in low-income families) that emphasizes consuming less fruit juice, cheese, and eggs and more whole fruits and vegetables.

The risk that overweight children will continue to be overweight when they are older was documented in a recent U.S. study of nearly 8,000 children (Cunningham, Kramer, & Narayan, 2014). In this study, overweight 5-year-olds were four times more likely to be obese at 14 years of age than their 5-year-old counterparts who began kindergarten at a normal weight. Also, in the recent study described earlier in which obesity was reduced in preschool children, the children who were obese were five times more likely to be overweight or obese in adulthood (Ogden & others, 2014).

A comparison of 34 countries revealed that the United States had the second highest rate of childhood obesity (Janssen & others, 2005). Childhood obesity contributes to a number of health problems in young children (Faguy, 2016; Small & Ablasca, 2016). For example, physicians are now seeing type 2 (adult-onset) diabetes (a condition directly linked with obesity and a low level of fitness) in children as young as age 5 (Chaturvedi & others, 2014). We will have much more to consider about children's eating behavior and weight status later.

Many aspects of children's lives can contribute to becoming overweight or obese. Prevention of obesity in children includes helping children, parents, and teachers see food as a way to satisfy hunger and meet nutritional needs, not as proof of love or as a reward for good behavior (Fedewa, 2015; Steinsbekk, Belsky, & Wichstrom, 2016). Routine physical activity should be a daily occurrence (Street, Wells, & Hills, 2015). A recent research study also found that viewing as little as one hour of television daily was associated with an increase in body mass index (BMI) between kindergarten and first grade (Peck & others, 2015).

Malnutrition

Poor nutrition affects many young children from low-income families. Many of these children do not obtain essential amounts of iron, vitamins, or protein. Poor nutrition is a particular concern in the lives of infants from low-income families.

To address this problem in the United States, the WIC (Women, Infants, and Children) program provides federal grants to states for healthy supplemental foods, health-care referrals, and nutrition education for women from low-income families beginning in pregnancy, and to infants and young children up to 5 years of age who are at nutritional risk (Kennedy & Guthrie, 2016). WIC serves approximately 7,500,000 participants in the United States. Positive influences on infants' and young children's nutrition and health, as well as mothers' health, have been found for participants in WIC (Chiasson & others, 2016; Reat & others, 2015). For example, a multiple-year literacy intervention with Spanish-speaking families in the WIC program in Los Angeles increased literacy resources and activities at home, which in turn led to a higher level of school readiness in children (Whaley & others, 2011). And in recent longitudinal studies, when mothers participated prenatally and in early childhood in WIC programs, young children showed short-term cognitive benefits and longer-term reading and math benefits (Jackson, 2015).

Exercise

Young children should engage in physical activity every day (Cruz & others, 2016; Innella & others, 2016; Wuest & Fisette, 2015). Recently, four expert panels from Australia, Canada, the United Kingdom, and the United States issued physical activity guidelines for young children that were quite similar (Pate & others, 2015). The guidelines recommend that young children get an average of 15 or more minutes of physical activity per hour over a 12-hour period, or about 3 hours per day total. These guidelines reflect an increase from earlier guidelines (National Association for Sport and Physical Education, 2002). The child's life should center on activities, not meals (Janssen, 2014; Rowland, 2016). Following are some recent research studies that examine young children's exercise and activities:

- In preschoolers, more time spent in vigorous physical activity was strongly linked to a lower probability of being overweight or obese (Collings & others, 2013).
- Observations of 3- to 5-year-old children during outdoor play at preschools revealed that the preschool children were mainly sedentary even when participating in outdoor play (Brown & others, 2009). In this study, throughout the day the preschoolers were sedentary 89 percent of the time, engaged in light activity 8 percent of the time, and participated in moderate to vigorous physical activity only 3 percent of the time.
- A research review of 17 studies concluded that exercise was an effective strategy for reducing body fat in overweight and obese children (Kelley & Kelley, 2013).
- Preschool children's physical activity was enhanced by family members engaging in sports together and by parents' perception that it was safe for their children to play outside (Beets & Foley, 2008).
- Incorporation of a "move and learn" physical activity curriculum increased the activity level of 3- to 5-year-old children in a half-day preschool program (Trost, Fees, & Dzewaltowski, 2008).
- Sixty minutes of physical activity per day in preschool academic contexts improved early literacy (Kirk & Kirk, 2016).

How Would You...?

As a health-care professional, how would you advise parents who want to get their talented 4-year-old child into a soccer league for preschool children?



How much physical activity should preschool children engage in per day?

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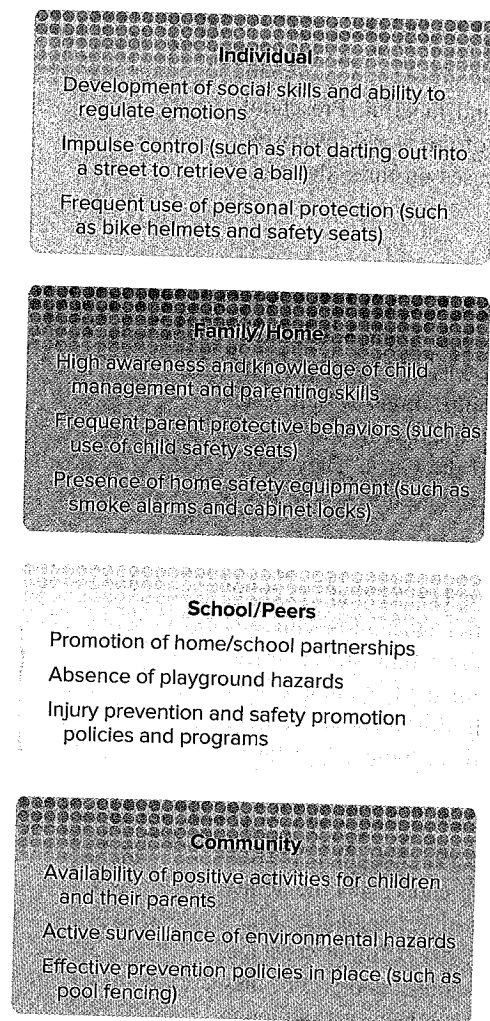


Figure 2
Characteristics
That Enhance
Young Children's
Safety

In each context of a child's life, steps can be taken to create conditions that enhance the child's safety and reduce the likelihood of injury. *How are the contexts listed in the figure related to Bronfenbrenner's theory?*

the home are more likely to develop wheezing and asthma than are children in homes where no one smokes (Hur, Liang, & Lin, 2014). Another study revealed that exposure to secondhand smoke was related to young children's sleep problems, including sleep-disordered breathing (Yolton & others, 2010). Researchers have also found that maternal cigarette smoking and alcohol consumption when children were 5 years of age were linked to children subsequently engaging in early onset of smoking in adolescence (Hayatbakhsh & others, 2013).

Although accidents and serious illnesses such as cancer are the leading causes of death among children in the United States, this is not the case in a number of other countries in the world, where many children die of preventable infectious diseases. Many of the deaths of young children around the world could be prevented by a reduction in poverty and improvements in nutrition, sanitation, education, and health services (UNICEF, 2016). High poverty rates have devastating effects on the health of a country's young children, as they often experience lives of hunger, malnutrition, illness, inadequate access to health care, unsafe water, and a lack of protection from harm (Mace, 2016; UNICEF, 2016). In the last decade, there has been a dramatic increase in the number of young children who have died because of HIV/AIDS transmitted to them by their parents. Deaths of young children due to HIV/AIDS especially occur in countries with high rates of poverty and low levels of education (UNICEF, 2016).

Illness and Death

The vast majority of children in the United States go through the physical changes just described and reach adulthood without serious illness or death. However, some do not. In the United States accidents are the leading cause of death in young children, followed by cancer and cardiovascular disease (National Center for Health Statistics, 2015). In addition to motor vehicle accidents, other accidental deaths in children involve drowning, falls, and poisoning.

Children's safety is influenced not only by their own skills and safety-related behaviors but also by characteristics of their family and home, school and peers, and community (Shah & others, 2015; Sharma & Ford-Jones, 2015). Figure 2 describes steps that can be taken in each of these contexts to enhance children's safety and prevent injury (Sleet & Mercy, 2003).

One major danger to children is parental smoking (Mason, Wheeler, & Brown, 2015; Mbulo & others, 2016). An estimated 22 percent of children and adolescents in the United States are exposed to tobacco smoke in the home. A

How Would You...?

As a health-care professional, how would you talk with parents about the impact of secondhand smoke on children's health to encourage parents to stop smoking?



Many children in impoverished countries die before reaching the age of 5 from dehydration and malnutrition brought about by diarrhea. *What are some of the other main causes of death in young children around the world?*

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Cognitive Changes

The cognitive world of the preschool child is creative, free, and fanciful. Preschool children's imaginations work overtime, and their mental grasp of the world improves. Our coverage of cognitive development in early childhood focuses on three theories: Piaget's, Vygotsky's, and information processing.

Piaget's Preoperational Stage

Remember that during Piaget's first stage of development, the sensorimotor stage, the infant becomes increasingly able to organize and coordinate sensations and perceptions with physical movements and actions. The **preoperational stage**, which lasts from approximately age 2 to 7, is the second stage in Piaget's theory. In this stage, children begin to represent the world with words, images, and drawings. They form stable concepts and begin to reason. At the same time, the young child's cognitive world is dominated by egocentrism and magical beliefs.

Because Piaget called this stage "preoperational," it might sound like an unimportant waiting period. Not so. However, the label *preoperational* emphasizes that the child does not yet perform **operations**, which are reversible mental actions that allow children to do mentally what before they could do only physically. Mentally adding and subtracting numbers are examples of operations. *Preoperational thought* is the beginning of the ability to reconstruct in thought what has been established in behavior. It can be divided into two substages: the symbolic function substage and the intuitive thought substage.

The Symbolic Function Substage

The **symbolic function substage** is the first substage of preoperational thought, occurring roughly between the ages of 2 and 4. In this substage, the young child gains the ability to mentally represent an object that is not present. This ability vastly expands the child's mental world (Lillard & Kavanaugh, 2014; Mandler & DeLoache, 2012). In this substage, children use scribble designs to represent people, houses, cars, clouds, and so on; they begin to use language more effectively and engage in pretend play. However, although young children make distinct progress during this substage, their thinking still has important limitations, two of which are egocentrism and animism.

Egocentrism is the inability to distinguish between one's own perspective and someone else's perspective. The following telephone conversation between 4-year-old Marie, who is at home, and her father, who is at work, typifies Marie's egocentric thought:

Father: Marie, is Mommy there?
Marie silently nods.

Father: Marie, may I speak to Mommy?
Marie nods again, silently.

Marie's response is egocentric in that she fails to consider her father's perspective before replying. A nonegocentric thinker would have responded verbally.

Piaget and Barbel Inhelder (1969) initially studied young children's egocentrism by devising the three mountains task (see Figure 3). The child walks around the model of the mountains and becomes familiar with what the mountains look like from different perspectives, and she can see that there are different objects on the mountains. The child is then seated on one side of the table on which the mountains are placed. The experimenter moves a doll to different locations around the table, and at each location asks the child to select from a series of photos the one that most accurately reflects the view that the doll is seeing. Children in the preoperational stage often pick their own view rather than the doll's view. Preschool children frequently show the ability to take another's perspective on some tasks but not others.

preoperational stage Piaget's second stage, lasting from about 2 to 7 years of age, during which children begin to represent the world with words, images, and drawings, and symbolic thought goes beyond simple connections of sensory information and physical action; stable concepts are formed, mental reasoning emerges, egocentrism is present, and magical beliefs are constructed.

operations In Piaget's theory, these are internalized, reversible sets of actions that allow children to do mentally what they formerly did physically.

symbolic function substage Piaget's first substage of preoperational thought, in which the child gains the ability to mentally represent an object that is not present (between about 2 and 4 years of age).

egocentrism The inability to distinguish between one's own perspective and someone else's (salient feature of the first substage of preoperational thought).

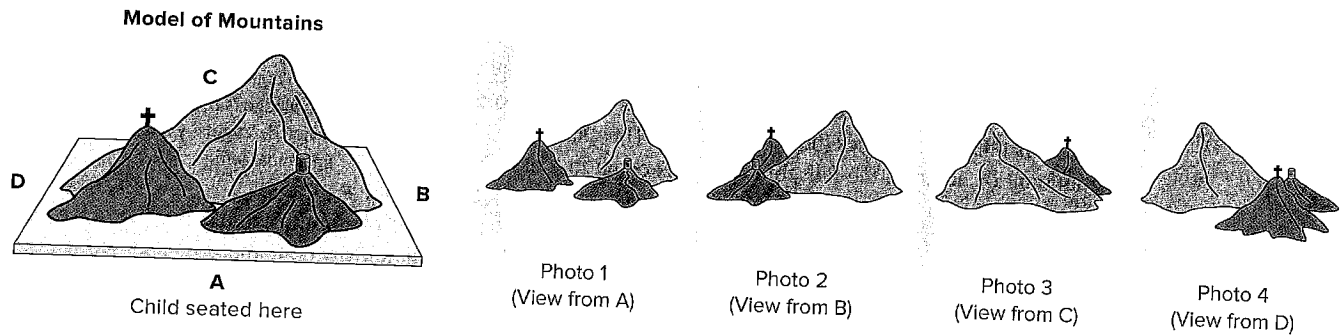


Figure 3 The Three Mountains Task

Photo 1 shows the child's perspective from where he or she is sitting (location A). Photos 2, 3, and 4 show what the mountains would look like to a person sitting at locations B, C, and D, respectively. When asked to choose the photograph that shows what the mountains look like from position B, the preoperational child selects a photograph taken from location A, the child's view at the time. A child who thinks in a preoperational way cannot take the perspective of a person sitting at another spot.

Animism, another limitation of preoperational thought, is the belief that inanimate objects have lifelike qualities and are capable of action. A young child might show animism by saying, "That tree pushed the leaf off, and it fell down," or "The sidewalk made me mad; it made me fall down." A young child who shows animism fails to distinguish among appropriate and inappropriate occasions for using human perspectives.

The Intuitive Thought Substage

The **intuitive thought substage** is the second substage of preoperational thought, occurring between ages 4 and 7. In this substage, children begin to use primitive reasoning and want to know the answers to all sorts of questions. Consider 4-year-old Terrell, who is at the beginning of the intuitive thought substage. Although he is starting to develop his own ideas about the world he lives in, his ideas are still simple, and he is not very good at thinking things out. He has difficulty understanding events that he knows are taking place but that he cannot see. His fantasized thoughts bear little resemblance to reality. He cannot yet answer the question "What if?" in any reliable way. For example, he has only a vague idea of why he needs to avoid getting hit by a car. He also has difficulty negotiating traffic because he cannot do the mental calculations necessary to estimate whether an approaching car will hit him when he crosses the road.

By age 5 children have just about exhausted the adults around them with "why" questions. The child's questions signal the emergence of interest in reasoning and in figuring out why things are the way they are. Following are some samples of the questions children ask during the intuitive thought substage (Elkind, 1976): "What makes you grow up?" "Why does a woman have to be married to have a baby?" "Who was the mother when everybody was a baby?" "Why do leaves fall?" "Why does the sun shine?"

Piaget called this substage *intuitive* because young children seem so sure about their knowledge and understanding, yet are unaware of how they know what they know. That is, they know something but know it without the use of rational thinking and are sometimes wrong as a result.

Centration and the Limits of Preoperational Thought

Another limitation of preoperational thought is **centration**, a centering of attention on one characteristic to the exclusion of all others. Centration is most clearly evidenced in young children's lack of **conservation**; that is, they lack the awareness that altering an object or substance's appearance does not change its basic properties. For example, to adults it is obvious that a certain amount of liquid remains the same when it is poured from one container to another, regardless of the containers' shapes. But this is not at all obvious to young children.

The situation that Piaget devised to study conservation is his most famous task. In the conservation task, children are presented with two

animism The belief that inanimate objects have lifelike qualities and are capable of action.

intuitive thought substage

Piaget's second substage of preoperational thought, in which children begin to use primitive reasoning and want to know the answers to all sorts of questions (between about 4 and 7 years of age).

centration The focusing of attention on one characteristic to the exclusion of all others.

conservation In Piaget's theory, awareness that altering an object's or a substance's appearance does not change its basic properties.

identical beakers, each filled to the same level with liquid (see Figure 4). They are asked if these beakers contain the same amount of liquid, and they usually say yes. Then the liquid from one beaker is poured into a third beaker, which is taller and thinner than the first two. The children are then asked if the amount of liquid in the tall, thin beaker is equal to that which remains in one of the original beakers. Children who are less than 7 or 8 years old usually say no and justify their answers in terms of the differing height or width of the two beakers. They are typically struck by the height of the liquid in a tall, narrow container and focus on that characteristic to the exclusion of others. Older children usually answer yes and justify their answers appropriately ("If you poured the water back, the amount would still be the same").

In Piaget's theory, failing the conservation of liquid task is a sign that children are at the preoperational stage of cognitive development. The failure demonstrates not only centration but also inability to mentally reverse actions. For example, in the conservation of matter example shown in Figure 5, preoperational children say that the longer shape contains more clay because they assume that "longer is more." Preoperational children cannot mentally reverse the clay-rolling process to see that the amount of clay is the same in both the shorter ball shape and the longer stick shape.

In addition to failing to conserve volume, preoperational children fail to conserve number, matter, length, and area. However, children often vary in their performance on different conservation tasks. Thus, a child might be able to conserve volume but not number.

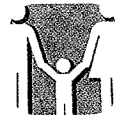
Some developmental psychologists do not believe that Piaget was entirely correct in his estimate of when children's conservation skills emerge. For example, Rochel Gelman (1969) showed that when children's attention to relevant aspects of the conservation task is improved, they are more likely to conserve. Gelman has also demonstrated that attentional training on one dimension, such as number, improves preschool children's performance on another dimension, such as mass. Thus, Gelman believes that conservation appears earlier than Piaget thought and that attention is especially important in explaining conservation.

social constructivist approach

An approach that emphasizes the social contexts of learning and that knowledge is mutually built and constructed. Vygotsky's theory reflects this approach.

How Would You...?

As a **human development and family studies professional**, how would you explain the child's response in the following scenario: A parent gives a 3-year-old a cookie. The child says, "I want two cookies." The parent breaks the cookie in half and hands the two pieces to the child, who happily accepts them.



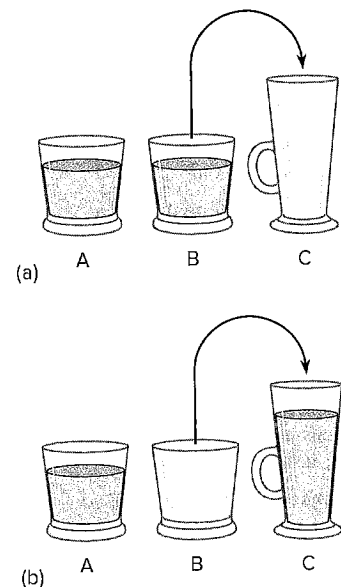
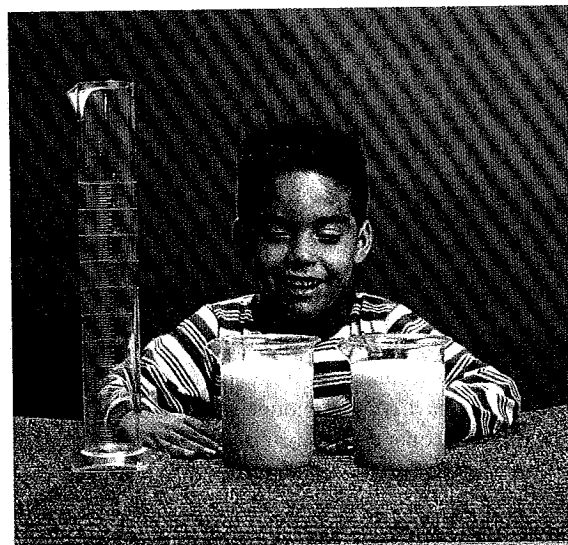
Vygotsky's Theory

Like Piaget, Vygotsky was a constructivist, but Vygotsky's theory is a **social constructivist approach**, and it emphasizes the social contexts of learning and the construction of knowledge through social interaction. In Vygotsky's view, children's cognitive

Figure 4 Piaget's Conservation Task

The beaker test is a well-known Piagetian test to determine whether a child can think operationally—that is, can mentally reverse actions and show conservation of the substance. (a) Two identical beakers, A and B, are presented to the child. Then the experimenter pours the liquid from B into C, which is taller and thinner than A or B. (b) The child is asked if these beakers (A and C) have the same amount of liquid. The preoperational child says "no." When asked to point to the beaker that has more liquid, the preoperational child points to the tall, thin beaker.

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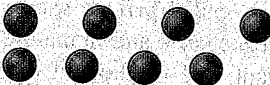
Type of Conservation	Initial Presentation	Manipulation	Preoperational Child's Answer
Number	 Two identical rows of objects are shown to the child, who agrees they have the same number.	 One row is lengthened and the child is asked whether one row now has more objects.	Yes, the longer row.
Matter	 Two identical balls of clay are shown to the child. The child agrees that they are equal.	 The experimenter changes the shape of one of the balls and asks the child whether they still contain equal amounts of clay.	No, the longer one has more.
Length	 Two sticks are aligned in front of the child. The child agrees that they are the same length.	 The experimenter moves one stick to the right, then asks the child if they are equal in length.	No, the one on the top is longer.

Figure 5 Some Dimensions of Conservation: Number, Matter, and Length

What characteristics of preoperational thought do children demonstrate when they fail these conservation tasks?

development depends on the tools provided by society and their minds are shaped by the cultural context in which they live (Gauvain & Perez, 2015; Roth, 2016; Yasnitsky & Van der Veer, 2016). Earlier, we described some basic elements of Vygotsky's theory. Here we expand on his theory, exploring his ideas about the zone of proximal development, scaffolding, and the young child's use of language.

The Zone of Proximal Development and Scaffolding

Vygotsky's belief in the importance of social influences, especially instruction, on children's cognitive development is reflected in his concept of the zone of proximal development. **Zone of proximal development (ZPD)** is Vygotsky's term for the range of tasks that are too difficult for the child to master alone but can be learned with the guidance and assistance of adults or more-skilled children. Thus, the lower limit of the ZPD is the level of skill reached by the child working independently. The upper limit is the level of additional responsibility the child can accept with the assistance of an able instructor (see Figure 6). The ZPD captures the child's cognitive skills that are in the process of maturing and can be accomplished only with the assistance of a more-skilled person (Holzman, 2016). Vygotsky (1962) called these the "buds" or "flowers" of development, to distinguish them from the "fruits" of development, which the child can already accomplish independently.

What are some factors that can influence the effectiveness of the ZPD in children's learning and development? Researchers have found that the ZPD's effectiveness can be enhanced by factors such as the following (Gauvain, 2013): better emotion regulation, secure attachment, absence of maternal depression, and child compliance.

Closely linked to the idea of the ZPD is the concept of scaffolding, introduced earlier in the context of parent-infant interaction. *Scaffolding* means changing the level of support. Over the course of a teaching session, a more-skilled person (a teacher or advanced peer) adjusts the amount of guidance to fit the child's current performance (Holzman, 2016). When the student is learning a new task, the skilled person may use direct instruction. As the student's competence increases, less guidance is given. A recent study found that scaffolding techniques that heightened engagement, encouraged direct exploration, and facilitated "sense-making," such as guided play, improved 4- to 5-year-old children's acquisition of geometric knowledge (Fisher & others, 2013).

Language and Thought

According to Vygotsky, children use speech not only for social communication but also to help them solve tasks. Vygotsky (1962) further

zone of proximal development (ZPD) Vygotsky's term for tasks that are too difficult for children to master alone but can be mastered with assistance.

believed that young children use language to plan, guide, and monitor their behavior. This use of language for self-regulation is called *private speech*. Piaget viewed private speech as egocentric and immature, but Vygotsky saw it as an important tool of thought during the early-childhood years (Alderson-Day & Fernyhough, 2014).

Vygotsky said that language and thought initially develop independently of each other and then merge. He emphasized that all mental functions have external, or social, origins. Children must use language to communicate with others before they can focus inward on their own thoughts. Children also must communicate externally and use language for a long time before they can make the transition from external to internal speech. This transition period occurs between ages 3 and 7 and involves talking to oneself. After a while, self-talk becomes second nature to children, and they can act without verbalizing. When this occurs, children have internalized their egocentric speech in the form of *inner speech*, which becomes their thoughts.

Vygotsky saw children who use a lot of private speech as more socially competent than those who don't. He argued that private speech represents an early transition toward becoming more socially communicative. For Vygotsky, when young children talk to themselves they are using language to govern their behavior and guide themselves. For example, a child working on a puzzle might say to herself, "Which pieces should I put together first? I'll try those green ones first. Now I need some blue ones. No, that blue one doesn't fit there. I'll try it over here." Researchers have found support for Vygotsky's view that private speech plays a positive role in children's development (Winsler, Carlton, & Barry, 2000). Children use private speech

more often when tasks are difficult, when they have made errors, and when they are not sure how to proceed (Berk, 1994). Researchers have also found that children who use private speech are more attentive and improve their performance more than do children who do not use private speech (Berk & Spuhl, 1995).



How Would You...?

As an **educator**, how would you apply Vygotsky's ZPD theory and the concept of scaffolding to help a young child complete a puzzle?

Teaching Strategies Based on Vygotsky's Theory

Vygotsky's theory has been embraced by many teachers and has been successfully applied to education (Adams, 2015). Here are some ways in which educators can apply Vygotsky's theory:

1. *Assess the child's ZPD.* Like Piaget, Vygotsky did not believe that formal, standardized tests are the best way to assess children's learning. Rather, Vygotsky argued that assessment should focus on determining the child's zone of proximal development. The skilled helper presents the child with tasks of varying difficulty to determine the best level at which to begin instruction.
2. *Use the child's zone of proximal development in teaching.* Teaching should begin near the zone's upper limit, so that the child can reach the goal with help and move to a higher level of skill and knowledge. Offer just enough assistance. You might ask, "What can I do to help you?" Or simply observe the child's intentions and attempts, providing support only when it is needed.
3. *Use more-skilled peers as teachers.* Remember that it is not just adults who are important in helping children learn. Children also benefit from the support and guidance of more-skilled children.

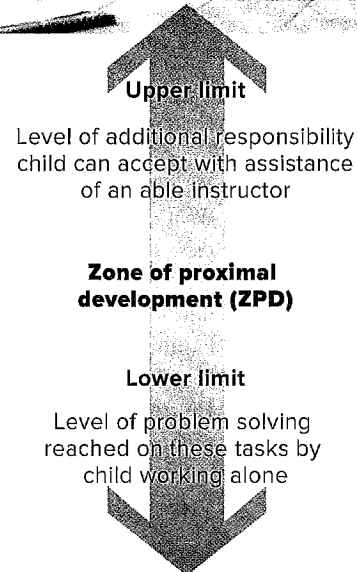


Figure 6 Vygotsky's Zone of Proximal Development

Vygotsky's zone of proximal development has a lower limit and an upper limit. Tasks in the ZPD are too difficult for the child to perform alone. They require assistance from an adult or a more-skilled child. As children experience the verbal instruction or demonstration, they organize the information in their existing mental structures so they can eventually perform the skill or task alone.

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4. *Monitor and encourage children's use of private speech.* Be aware of the developmental change from talking to oneself externally when solving a problem during the preschool years to talking to oneself privately in the early elementary school years. In the elementary school years, encourage children to internalize and self-regulate their talk to themselves.
5. *Place instruction in a meaningful context.* Educators today are moving away from abstract presentations of material, instead providing students with opportunities to experience learning in real-world settings. For example, instead of just memorizing math formulas, students work on math problems that have real-world implications.

With Vygotsky's theory in mind, let's examine an early childhood program that reflects these concepts. Tools of the Mind is an early-childhood education curriculum that emphasizes children's development of self-regulation and the cognitive foundations of literacy. The curriculum was created by Elena Bodrova and Deborah Leong (2007, 2015) and has been implemented in more than 200 classrooms. Most of the children in the Tools of the Mind programs are considered at risk of academic failure because of their living circumstances, which in many instances are characterized by poverty and other difficult conditions such as being homeless and having parents with drug problems.

Tools of the Mind is grounded in Vygotsky's (1962) theory, with special attention to cultural tools and the development of self-regulation, the zone of proximal development, scaffolding, private speech, shared activity, and play as important activity. In a Tools of the Mind classroom, dramatic play has a central role. Teachers guide children in creating themes that are based on the children's interests, such as treasure hunt, store, hospital, and restaurant. Teachers also incorporate field trips, visitor presentations, videos, and books in the development of children's play. They help children develop a play plan, which increases the maturity of their play. Play plans describe what the children expect to do in the play period, including the imaginary context, roles, and props to be used. The play plans increase the quality of their play and self-regulation.

Scaffolding children's writing is another important theme in the Tools of the Mind classroom. Teachers guide children in planning their own message by drawing a line to stand for each word the child says. Children then repeat the message, pointing to each line as they say the word. Then the child writes on the lines, trying to represent each word with some letters or symbols.

Research assessments of children's writing in Tools of the Mind classrooms revealed that they have more advanced writing skills than do children in other early childhood programs (Bodrova & Leong, 2007, 2015). For example, they write more complex messages, use more words, spell more accurately, show better letter recognition, and have a better understanding of the concept of a sentence. Also, one study assessed the effects of the Tools of the Mind curriculum on at-risk preschool children (Diamond & others, 2007). The results indicated that the Tools of the Mind curriculum improved the self-regulatory and cognitive control skills (such as resisting distractions and temptations) of such children. Other research on the Tools of the Mind curriculum has found that it improves young children's cognitive skills (Barnett & others, 2006; Saifer, 2007).

Evaluating Vygotsky's Theory

How does Vygotsky's theory compare with Piaget's? We already have mentioned several comparisons, such as Vygotsky's emphasis on the importance of inner speech in cognitive development and Piaget's view that such speech is immature. Figure 7 compares the two theories. The implication of Piaget's theory for teaching is that children need support to explore their world and discover knowledge. The main implication of Vygotsky's theory is that students need many opportunities to learn with a teacher and more-skilled peers (Gauvain, 2016). In both theories, teachers serve as facilitators and guides rather than as directors and molders (Borich, 2014).

	 Vygotsky	 Piaget
Sociocultural Context	Strong emphasis	Little emphasis
Constructivism	Social constructivist	Cognitive constructivist
Stages	No general stages of development proposed	Strong emphasis on stages (sensorimotor, preoperational, concrete operational, and formal operational)
Key Processes	Zone of proximal development, language, dialogue, tools of the culture	Schema, assimilation, accommodation, operations, conservation, classification
Role of Language	A major role; language plays a powerful role in shaping thought	Language has a minimal role; cognition primarily directs language
View on Education	Education plays a central role, helping children learn the tools of the culture	Education merely refines the child's cognitive skills that have already emerged
Teaching Implications	Teacher is a facilitator and guide, not a director; establish many opportunities for children to learn with the teacher and more-skilled peers	Also views teacher as a facilitator and guide, not a director; provide support for children to explore their world and discover knowledge

Figure 7 Comparison of Vygotsky's and Piaget's Theories

(Left) © A.R. Lauria / Dr. Michael Cole, Laboratory of Human Cognition, University of California, San Diego; (right) © Bettmann/Corbis

Even though their theories were proposed at about the same time, most of the world learned about Vygotsky's theory later than they did about Piaget's, so Vygotsky's theory has not yet been evaluated as thoroughly. Vygotsky's view of the importance of sociocultural influences on children's development fits with the current belief that it is important to evaluate contextual factors in learning (Muller Mirza, 2016; Yasnitsky & Van der Veer, 2016).

Some critics say that Vygotsky was not specific enough about age-related changes (Gauvain & Perez, 2015). Another criticism is that he overemphasized the role of language in thinking. His emphasis on collaboration and guidance also has potential pitfalls. Might facilitators be too helpful in some cases, as when a parent becomes overbearing and controlling? Further, some children might become lazy and expect help when they could have done something on their own.

Information Processing

Piaget's and Vygotsky's theories provided important ideas about how young children think and how their thinking changes. More recently, the information-processing approach has generated research that illuminates how children process information during the preschool years (Siegler, 2016a, b; Siegler & others, 2015). What are the limitations and advances in young children's ability to pay attention to their environment, to remember, to develop strategies and solve problems, and to understand their own mental processes and those of others?

Attention

Recall that we defined *attention* as the focusing of mental resources on select information. The child's ability to pay attention improves significantly during the preschool years (Rothbart & Posner, 2015). Toddlers wander around, shift attention from one activity to another, and seem to spend little time focused on any one object or event. By comparison, the preschool child might be observed watching television for half an hour. However, one study revealed that television watching and video game playing were both linked to attention problems in children (Swing & others, 2010).

Young children especially make advances in two aspects of attention: executive attention and sustained attention (Bell & Cuevas, 2015). **Executive attention** involves planning actions, allocating attention to goals, detecting and compensating for errors, monitoring progress on tasks, and dealing with novel or difficult circumstances. **Sustained attention**, also referred to as *vigilance*, is focused and extended engagement with an object, task, event, or other aspect of the environment. Research indicates that although older children and adolescents show increases in vigilance, it is during the preschool years that individuals show the greatest increase in vigilance (Rothbart & Posner, 2015). A recent study found that preschool sustained attention was linked to a greater likelihood of completing college at 25 years of age (McClelland & others, 2013).

In at least two ways, however, the preschool child's control of attention is still deficient:

1. *Salient versus relevant dimensions.* Preschool children are likely to pay attention to stimuli that stand out, or are *salient*, even when those stimuli are not relevant to solving a problem or performing a task. For example, if a flashy, attractive clown presents the directions for solving a problem, preschool children are likely to pay more attention to the clown than to the directions. After age 6 or 7, children attend more efficiently to the dimensions of the task that are relevant, such as the directions for solving a problem. This change reflects a shift to cognitive control of attention, so that children act less impulsively and reflect more.
2. *Planfulness.* When experimenters ask children to judge whether two complex pictures are the same, preschool children tend to use a haphazard comparison strategy, not examining all the details before making a judgment. By comparison, elementary-school-age children are more likely to systematically compare the details across the pictures, one detail at a time (Vurpillot, 1968).

In central European countries such as Hungary, kindergarten children participate in exercises designed to improve their attention (Posner & Rothbart, 2007). For example, in one eye-contact exercise, the teacher sits in the center of a circle of children and each child is required to catch the teacher's eye before being permitted to leave the group. In other exercises created to improve attention, teachers have children participate in stop-go activities during which they have to listen for a specific signal, such as a drumbeat or an exact number of rhythmic beats, before stopping the activity.

Computer exercises recently have been developed to improve children's attention (Rothbart & Posner, 2015; Stevens & Bavelier, 2012). For example, one study revealed that five days of computer exercises that involved learning how to use a joystick, relying on working memory, and resolving conflict improved the attention of 4- to 6-year-old children (Rueda, Posner, & Rothbart, 2005). Although not commercially available, further information about computer exercises for improving children's attention can be downloaded from www.teach-the-brain.org/learn/attention/index.

The ability of preschool children to control and sustain their attention is related to school readiness (Rothbart & Posner, 2015). For example, a study of more than 1,000 children revealed that their ability to sustain their attention at 54 months of age was linked to their school readiness (which included achievement and language skills) (NICHD Early Child Care Research Network, 2005). A later study showed that children whose parents and teachers rated them higher on a scale of having attention problems at 54 months of age had a lower level of social skills in peer relations in the first and third grades than their counterparts who were rated lower on the attention problems scale (NICHD Early Child Care Research Network, 2009).

executive attention Involves planning actions, allocating attention to goals, detecting and compensating for errors, monitoring progress on tasks, and dealing with novel or difficult circumstances.

sustained attention Also referred to as *vigilance*; involves focused and extended engagement with an object, task, event, or other aspect of the environment.



What are some advances in children's attention in early childhood?

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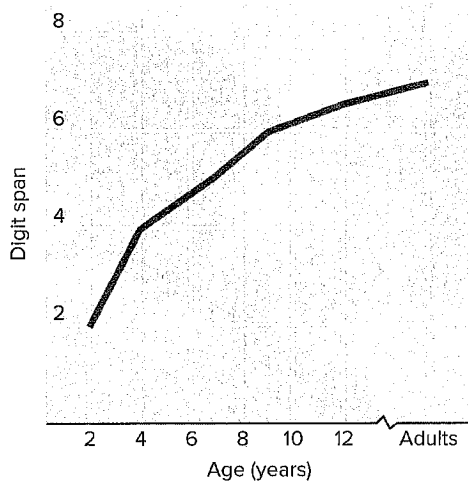


Figure 8 Developmental Changes in Memory Span

In one study, from 2 to 7 years of age children's memory span increased from 2 digits to about 5 digits (Dempster, 1981). Between 7 and 13 years of age, memory span had increased on average only another 1½ digits, to about 7 digits. *What factors might contribute to the increase in memory span during childhood?*

Short-Term Memory In **short-term memory**, individuals retain information for up to 30 seconds if there is no rehearsal of the information. Using *rehearsal* (repeating information after it has been presented), we can keep information in short-term memory for a much longer period. One method of assessing short-term memory is the memory-span task. You hear a short list of stimuli—usually digits—presented at a rapid pace (one per second, for example). Then you are asked to repeat the digits.

Research with the memory-span task suggests that short-term memory increases during early childhood. For example, in one investigation memory span increased from about 2 digits in 2- to 3-year-old children to about 5 digits in 7-year-old children, yet between ages 7 and 13 memory span increased by only 1½ digits (Dempster, 1981) (see Figure 8). Keep in mind, though, that memory span varies from one individual to another.

Why does memory span change with age? Rehearsal of information is important; older children rehearse the digits more than younger children do. Also important are efficiency of processing and speed, especially the speed with which memory items can be identified (Schneider, 2011).

The speed-of-processing explanation highlights a key point in the information-processing perspective: The speed with which a child processes information is an important aspect of the child's cognitive abilities, and there is abundant evidence that the speed with which many cognitive tasks are completed improves dramatically during the childhood years (Rose, Feldman, & Jankowski, 2015). A recent study found that myelination (the process by which the sheath that encases axons helps electrical signals travel faster down the axon) in a number of brain areas was linked to young children's processing speed (Chevalier & others, 2015).

How Accurate Are Young Children's Long-Term Memories? Just as toddlers' short-term memory span increases during the early childhood years, their memory also becomes more accurate. Young children can remember a great deal of information if they are given appropriate cues and prompts (Bruck & Ceci, 2012). Increasingly, young children are even being allowed to testify in court, especially if they are the only witnesses to abuse or a crime (Lamb & others, 2015). Several factors can influence the accuracy of a young child's memory, however (Bruck & Ceci, 1999):

- *There are age differences in children's susceptibility to suggestion.* Preschoolers are the most suggestible age group (Lehman & others, 2010). For example, preschool children are more susceptible to believing misleading or incorrect information given after an event (Ghetti & Alexander, 2004). Despite these age differences, there is still concern about the reaction of older children when they are subjected to suggestive interviews (Brown & Lamb, 2016).
- *There are individual differences in susceptibility.* Some preschoolers are highly resistant to interviewers' suggestions, whereas others immediately succumb to the slightest suggestion (Ceci, Hritz, & Royer, 2016).

short-term memory The memory component in which individuals retain information for up to 30 seconds, assuming there is no rehearsal of the information.

And in yet another study, the ability to focus attention better at age 5 was linked to a higher level of school achievement at age 9 (Razza, Martin, & Brooks-Gunn, 2012).

Memory

Memory—the retention of information over time—is a central process in children's cognitive development. Most of an infant's memories are fragile and, for the most part, short-lived—except for the memory of perceptual-motor actions, which can be substantial (Bauer & Leventon, 2015). Thus, to understand the infant's capacity to remember, we need to distinguish *implicit memory* from *explicit memory*. Explicit memory itself, however, comes in many forms. One distinction is between relatively permanent or *long-term memory* and short-term memory.

- *Interviewing techniques can produce substantial distortions in children's reports about highly salient events.* Children are suggestible not just about peripheral details but also about the central aspects of an event. In some cases, children's false reports can be tinged with sexual connotations. In laboratory studies, young children have made false claims about "silly events" that involved body contact (such as "Did the nurse lick your knee?" or "Did she blow in your ear?"). A significant number of preschool children have falsely reported that someone touched their private parts, kissed them, or hugged them, when these events clearly did not happen. Nevertheless, young children are capable of recalling much that is relevant about an event (Lamb & others, 2015). When young children do recall information accurately, the interviewer often has a neutral tone and avoids asking misleading questions, and there is no reason for the child to make a false report.

In sum, the accuracy of a young child's eyewitness testimony may depend on a number of factors, such as the type, number, and intensity of the suggestive techniques the child has experienced (Andrews, Lamb, & Lyon, 2016; Lamb & others, 2015). It appears that the reliability of young children's reports has as much to do with the skills and motivation of the interviewer as with any natural limitations on young children's memory (Bruck & Ceci, 2012; Ceci, Hritz, & Royer, 2016).

Autobiographical Memory Another aspect of long-term memory that has been extensively studied in children's development is autobiographical memory (Pathman, Doydum, & Bauer, 2013; Valentino & others, 2014). *Autobiographical memory* involves memory of significant events and experiences in one's life. You are engaging in autobiographical memory when you answer questions such as: Who was your first-grade teacher and what was s/he like? What is the most traumatic event that happened to you as a child?

During the preschool years, young children's memories increasingly take on more autobiographical characteristics (Bauer, 2015; Bauer & Larkina, 2016). In some areas, such as remembering a story, a movie, a song, or an interesting event or experience, young children have been shown to have reasonably good memories. From 3 to 5 years of age, they (1) increasingly remember events as occurring at a specific time and location, such as "on my birthday at Chuck E. Cheese's last year" and (2) include more elements that are rich in detail in their narratives (Bauer, 2013). In one study, children went from using 4 descriptive items per event at 3½ years of age to 12 such items at 6 years of age (Fivush & Haden, 1997).

Executive Function

Recently, increased interest has been directed toward the development of children's **executive function**, an umbrella-like concept that encompasses a number of higher-level cognitive processes linked to the development of the brain's prefrontal cortex (Cassidy, 2016; Groppe & Elsner, 2016; Moriguchi, Chevalier, & Zelazo, 2016). Executive function involves managing one's thoughts to engage in goal-directed behavior and exercise self-control. Earlier in this chapter, we described the recent interest in *executive attention*, which comes under the umbrella of executive function.

In early childhood, executive function especially involves developmental advances in cognitive inhibition (such as inhibiting a strong tendency that is incorrect), cognitive flexibility (such as shifting attention to another item or topic), goal-setting (such as sharing a toy or mastering a skill like catching a ball), and delay of gratification (the ability to forego an immediate pleasure or reward for a more desirable one later) (Griffin, Freund, & McCardle, 2015; Muller & Kerns, 2015). During early childhood, the relatively stimulus-driven toddler is transformed into a child capable of flexible, goal-directed problem solving that characterizes executive function (Zelazo & Muller, 2011). Figure 9 describes a research study on young children's executive function (Carlson & White, 2011).

Walter Mischel and his colleagues (Berman & others, 2013; Mischel, 2014; Mischel, Cantor, & Feldman, 1996; Mischel & Moore, 1980; Mischel & others, 2011; Schlam & others, 2013) have conducted a number of studies of delay of gratification with young children. One way they assess delay of

executive function An umbrella-like concept that consists of a number of higher-level cognitive processes linked to the development of the brain's prefrontal cortex. Executive function involves managing one's thoughts to engage in goal-directed behavior and to use self-control.



Figure 9 Studying Executive Function in Young Children

Researcher Stephanie Carlson has conducted a number of research studies on young children's executive function. In one study, young children were read either *Planet Opposite*—a fantasy book in which everything is turned upside down—or *Fun Town*—a reality-oriented fiction book (Carlson & White, 2011). After being read one of the books, the young children completed the Less Is More Task, in which they were shown two trays of candy—one with 5 pieces, the other with 2—and told that the tray they pick will be given to the stuffed animal seated at the table. Sixty percent of the 3-year-olds who heard the *Planet Opposite* story gave away the five pieces of candy compared with only 20 percent of their counterparts who heard the more straightforward story. The results indicated that learning about a topsy-turvy imaginary world likely helped the young children become more flexible in their thinking.

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related. In her words, “When we see kids with good executive function, we often see adults around them that are good self-regulators. . . . Parents model, they support, and they scaffold these skills” (Masten, 2012, p. 11). A recent study revealed that secure attachment to mothers during the toddler years was linked to a higher level of executive function at 5 to 6 years of age (Bernier & others, 2015). Another recent observational study found that a higher level of control by fathers was linked to 3-year-olds’ lower executive function (Meuwissen & Carlson, 2016). And a recent study revealed that experiencing peer problems (such as victimization and rejection) beginning in early childhood is linked to lower executive function later in childhood (Holmes, Kim-Spoon, & Deater-Deckard, 2016). Also in this study, better executive function reduced the likelihood of experiencing peer problems later in childhood.

Significant advances in the development of executive function occur in middle and late childhood (Diamond, 2013). Adult-level

gratification is to place a young child alone in a room with an alluring cookie that is within their reach. The children are told that they either can ring a bell at any time and eat the cookie or they can wait until the experimenter returns and then receive two cookies. For the young children who waited for the experimenter to return, what did they do to help them wait? They engaged in a number of strategies to distract their attention from the cookie, including singing songs, picking their noses—anything to keep from looking at the cookie. Mischel and his colleagues labeled these strategies “cool thoughts” (that is, doing non-cookie-related thoughts and activities), whereas they said the young children who looked at the cookie were engaging in “hot thoughts.” The young children who engaged in cool thoughts were more likely to eat the cookie later or wait until the experimenter returned to the room. In one study using the delay of gratification task just described, longer delay of gratification at 4 years of age was linked to a lower body mass index (BMI) three decades later (Schlam & others, 2013).

Researchers have found that advances in executive function in the preschool years are linked with math skills, language development, and school readiness (Ursache, Blair, & Raver, 2012). A recent study revealed that executive function skills predicted mathematical gains in kindergarten (Fuhs & others, 2014). Another recent study of young children also revealed that executive function was associated with their emergent literacy and vocabulary development (Becker & others, 2014). And a recent study found that young children who showed delayed development of executive function had a lower level of school readiness (Willoughby & others, 2016).

Parents and teachers play important roles in the development of executive function (Cuevas & others, 2014). Ann Masten and her colleagues (Herbers & others, 2011; Masten, 2013; Masten & others, 2008) have found that executive function and parenting skills are linked to homeless children’s success in school. Masten believes that executive function and good parenting skills are



How did Walter Mischel and his colleagues study young children’s delay of gratification? In their research, what later developmental outcomes were linked to the preschoolers’ ability to delay gratification?

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executive function emerges in early adolescence on many tasks, but on some tasks executive function continues to improve during adulthood (Zelazo & Muller, 2011).

Some developmental psychologists use their training in areas such as cognitive development to pursue careers in applied areas. To read about the work of Helen Hadani, an individual who followed this path, see the *Careers in Life-Span Development* profile.

Careers in life-span development

Helen Hadani, Developmental Psychologist, Toy Designer, and Associate Director of Research for the Center for Childhood Creativity

Helen Hadani obtained a Ph.D. from Stanford University in developmental psychology. As a graduate student at Stanford, she worked part-time for Hasbro Toys and Apple testing children's software and computer products for young children. Her first job after graduate school was with Zowie Entertainment, which was subsequently bought by LEGO. In her work as a toy designer there, Helen conducted experiments and focus groups at different stages of a toy's development and also studied the age-effectiveness of the toy. In Helen's words, "Even in a toy's most primitive stage of development . . . you see children's creativity in responding to challenges, their satisfaction when a problem is solved or simply their delight in having fun" (Schlegel, 2000, p. 50).

More recently, she began working with the Bay Area Discovery Museum's Center for Childhood Creativity (CCC) in Sausalito, California, an education-focused think tank that pioneers new research, thought-leadership, and teacher training programs that advance creative thinking in all children. Helen is currently the Associate Director of Research for the CCC.



Helen Hadani, a developmental psychologist, has worked as a toy designer and is currently directing research on creativity at a children's museum.

© Dr. Helen Hadani

The Child's Theory of Mind

Even young children are curious about the nature of the human mind (Hughes & Devine, 2015; Lane & others, 2016; Sodian & others, 2016; Wellman, 2011, 2015). They have a **theory of mind**, a term that refers to awareness of one's own mental processes and those of others. Studies of theory of mind view the child as "a thinker who is trying to explain, predict, and understand people's thoughts, feelings, and utterances" (Harris, 2006). Children's theory of mind changes as they develop through childhood (Gelman, 2013; Wellman, 2011, 2015). However, whether infants have a theory of mind continues to be questioned by some (Rakoczy, 2012). The consensus is that some changes occur quite early in development, as we see next. The main changes occur at ages 2 to 3, 4 to 5, and beyond age 5.

Ages 2 to 3 In this time frame, children begin to understand the following three mental states:

1. *Perceptions*: The child realizes that other people see what is in front of their eyes and not necessarily what is in front of the child's eyes.
2. *Emotions*: The child can distinguish between positive and negative emotions. A child might say, "Vic feels bad."
3. *Desires*: The child understands that if someone wants something, he or she will try to get it. A child might say, "I want my mommy."

theory of mind Refers to the awareness of one's own mental processes and the mental processes of others.

Children refer to desires earlier and more frequently than they refer to cognitive states such as thinking and knowing (Harris, 2006). Two- to 3-year-olds understand the way desires are related to actions and to simple emotions (Harris, 2006). For example, they understand that people will search for what they want and that if they obtain it, they are likely to feel happy, but if they don't, they will keep searching for it and are likely to feel sad or angry.

Ages 4 to 5 Children come to understand that the mind can represent objects and events accurately or inaccurately (Rhodes & Brandone, 2014). The realization that people can have *false beliefs*—beliefs that are not true—develops in a majority of children by the time they are 5 years old (Wellman, Cross, & Watson, 2001) (see Figure 10).

In a classic false-belief task, children are told a story about Sally and Anne. In the story, Sally places a toy in a basket and then leaves the room. In her absence, Anne takes the toy from the basket and places it in a box. Children are asked where Sally will look for the toy when she returns. The major finding is that 3-year-olds tend to fail false-belief tasks, saying that Sally will look in the box (even though Sally could not know that the toy has been moved to this new location). Four-year-olds and older children tend to pass the task, correctly saying that Sally will have a “false belief”—she will think the object is in the basket, even though that belief is now false. The conclusion from these studies is that children younger than age 4 do not understand that it is possible to have a false belief.

Young children's understanding of thinking has some limitations (Wellman, 2011). They often underestimate when mental activity is likely occurring. For example, they fail to attribute mental activity to someone who is sitting quietly, reading, or talking (Flavell, Green, & Flavell, 1995). Their understanding of their own thinking is also limited.

Beyond Age 5 It is only beyond the preschool years that children have a deepening appreciation of the mind itself rather than just an understanding of mental states (Wellman, 2011, 2015). Not until middle and late childhood do children see the mind as an active constructor of knowledge or a processing center (Flavell, Green, & Flavell, 2000). It is only then that they move from understanding that beliefs can be false to realizing that the same event can be open to multiple interpretations (Carpendale & Chandler, 1996).

Individual Differences As in other developmental research, there are individual differences in the ages when children reach certain milestones in their theory of mind (Hughes & Devine, 2015; Wellman, 2015). For example, children who talk with their parents about feelings frequently as 2-year-olds show better performance on theory of mind tasks (Ruffman, Slade, & Crowe, 2002), as do children who frequently engage in pretend play (Harris, 2000).

Executive function, which involves goal-directed behavior and self-control, and which was discussed earlier in the chapter, is linked to the development of a theory of mind (Devine & others, 2016; Fiske & others, 2014). For example, in one executive function task, children are asked to say the word “night” when they see a picture of a sun and the word “day” when they see a picture of a moon and stars.

Children who perform better at such executive function tasks show a better understanding of theory of mind (Muller & Kerns, 2015). In recent research, executive function at 3 years of age predicted theory of mind at 4 years of age, and likewise executive function at 4 years of age predicted theory of mind at 5 years of age (Marcovitch & others, 2015). In this research, the reverse did not occur—that is, theory of mind at earlier ages did not predict executive function at later ages.

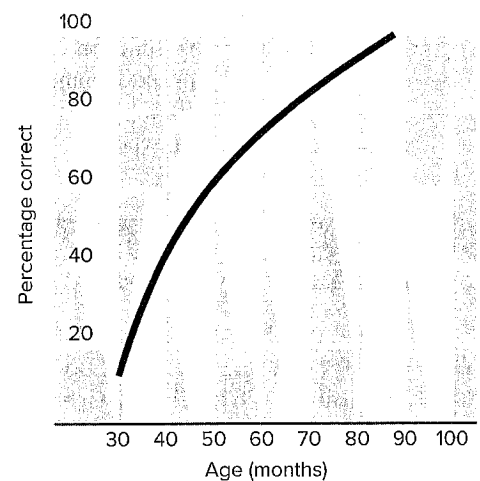


Figure 10 Developmental Changes in False-Belief Performance

False-belief performance—the child's understanding that a person has a false belief that contradicts reality—dramatically increases from 2½ years of age through the middle of the elementary school years. In a summary of the results of many studies, 2½-year-olds gave incorrect responses about 80 percent of the time (Wellman, Cross, & Watson, 2001). At 3 years, 8 months, they were correct about 50 percent of the time, and after that, gave increasingly correct responses.

Language development also likely plays a prominent role in the increasingly reflective nature of theory of mind as children go through the early childhood and middle and late childhood years (Meins & others, 2013). Researchers have found that differences in children's language skills predict performance on theory of mind tasks (Hughes & Devine, 2015).

Among other factors that influence children's theory of mind development are advances in prefrontal cortex functioning (Powers, Chavez, & Heatherton, 2016), engaging in make-believe play (Kavanaugh, 2006), and various aspects of social interaction (Hughes & Devine, 2015). Among the social interaction factors that advance children's theory of mind are being securely attached to parents who engage children in mental state talk ("That's a good thought you have" or "Can you tell what he's thinking?") (Laranjo & others, 2010) and having older siblings and friends who engage in mental state talk (Hughes & others, 2010).

Another individual difference in understanding the mind involves autism (Fletcher-Watson & others, 2014; Leung & others, 2016). Children with autism show a number of behaviors that differ from those of most children their age, including deficits in social interaction and communication as well as repetitive behaviors or interests. Researchers have found that autistic children have difficulty developing a theory of mind, especially when it comes to understanding other people's beliefs and emotions (Broekhof & others, 2015; Luiselli, 2014). However, children with autism might have difficulty in understanding others' beliefs and emotions not solely due to theory of mind deficits but to other aspects of cognition such as problems in focusing attention, eye gaze, face recognition, memory, language impairment, or some general intellectual impairment (Mutreja, Craig, & O'Boyle, 2016; Richard & Lajiness-O'Neill, 2015; Stephanie & Julie, 2015).

Young children's symbolic skills also contribute to the development of theory of mind. A recent study found that young children's symbolic understanding provided a foundation for their theory of mind and also for language, pretend play, and representational understanding (Lillard & Kavanaugh, 2014).

Language Development

Toddlers move rather quickly from producing two-word utterances to creating three-, four-, and five-word combinations. Between ages 2 and 3, they begin the transition from saying simple sentences that express a single proposition to saying complex sentences.

As young children learn the special features of their own language, there are extensive regularities in how they acquire that particular language (Berko Gleason, 2009; Clark, 2017; Hoff, 2014; Litz, Snyder, & Pater, 2016). For example, all children learn the prepositions *on* and *in* before other prepositions. Children learning other languages, such as Russian or Chinese, also acquire the particular features of those languages in a consistent order.

Understanding Phonology and Morphology

Phonology refers to the sound system of a language, including the sounds used and how they may be combined. During the preschool years, most children gradually become more sensitive to the sounds of spoken words and increasingly capable of producing all the sounds of their language (Bailey, Osipova, & Kelly, 2016; Goad, 2016). By their third birthday they can produce all the vowel sounds and most of the consonant sounds (Menn & Stoel-Gammon, 2009).

By the time children move beyond two-word utterances, they demonstrate a knowledge of morphology rules (Snyder, 2016). **Morphology** refers to the units of meaning involved in word formation. Children begin using the plural and possessive forms of nouns (such as *dogs* and *dog's*). They put appropriate endings on verbs (such as *-s* when the subject is third-person singular and *-ed* for the past tense). They use prepositions (such as *in* and *on*), articles (such as *a* and *the*), and various forms of the verb *to be* (such as "I was going to the store"). Some of the best evidence for changes in children's use of morphological rules occurs in their overgeneralization of the rules, as when a preschool child says "foots" instead of "feet," or "goed" instead of "went."

phonology The sound system of a language, including the sounds used and how they may be combined.

morphology Units of meaning involved in word formation.

In a classic experiment that was designed to study children's knowledge of morphological rules, such as how to make a plural, Jean Berko (1958) presented preschool and first-grade children with cards such as the one shown in Figure 11. The children were asked to look at the card while the experimenter read aloud the words on the card. Then the children were asked to supply the missing word. This might sound easy, but Berko was interested in the children's ability to apply the appropriate morphological rule—in this case, to say “wugs” with the *z* sound that indicates the plural.

Although the children's answers were not perfect, they were much better than chance. What makes Berko's study impressive is that most of the words were made up for the experiment. Thus, the children could not base their responses on remembering past instances of hearing the words. That they could make the plurals or past tenses of words they had never heard before was proof that they knew the morphological rules.

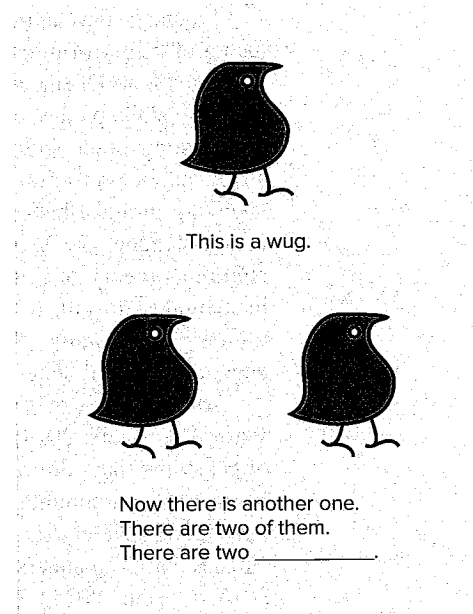


Figure 11 Stimuli in Berko's Study of Young Children's Understanding of Morphological Rules

In Jean Berko's (1958) study, young children were presented with cards such as this one with a “wug” on it. Then the children were asked to supply the missing word; in supplying the missing word, they also had to say it correctly. “Wugs” is the correct response here.

Changes in Syntax and Semantics

Preschool children also learn and apply rules of **syntax**, which involves the way words are combined to form acceptable phrases and sentences (Clark, 2017; de Villiers & de Villiers, 2013). They show a growing mastery of complex rules for how words should be ordered. Consider *wh*-questions, such as “Where is Daddy going?” or “What is that boy doing?” To ask these questions properly, the child must know two important differences between *wh*-questions and affirmative statements (for instance, “Daddy is going to work” and “That boy is waiting for the school bus”). First, a *wh*-word must be added at the beginning of the sentence. Second, the auxiliary verb must be inverted—that is, exchanged with the subject of the sentence. Young children learn quite early where to put the *wh*-word, but they take much longer to learn the auxiliary-inversion rule. Thus, preschool children might ask, “Where Daddy is going?” and “What that boy is doing?”

Gains in **semantics**, the aspect of language that refers to the meaning of words and sentences, also characterize early childhood. Vocabulary development is dramatic (Bailey, Osipova, & Kelly, 2016; Thornton, 2016; Parish-Morris, Golinkoff, & Hirsh-Pasek, 2013). Some experts have concluded that between 18 months and 6 years, young children learn an average of about one new word every waking hour (Gelman & Kalish, 2006)! By the time they enter first grade, it is estimated that children know about 14,000 words (Clark, 1993).

How can children learn so many new words so quickly? One possible explanation is **fast mapping**, which involves children's ability to make an initial connection between a word and its referent after only limited exposure to the word (Bailey, Osipova, & Kelly, 2016; Kan, 2014). Researchers have found that exposure to words on multiple occasions over several days results in more successful word learning than the same number of exposures in a single day (Childers & Tomasello, 2002). Recent research using eye-tracking found that even 15-month-old infants fast map words (Puccini & Liszkowski, 2012).

What are some important aspects of how word learning optimally occurs? Kathy Hirsh-Pasek and Roberta Golinkoff (Harris, Golinkoff, & Hirsh-Pasek, 2011; Hirsh-Pasek & Golinkoff, 2014) emphasize six key principles in young children's vocabulary development:

1. *Children learn the words they hear most often.* They learn the words they encounter when interacting with parents, teachers, siblings, and peers, and also from books. They especially benefit from encountering words that they do not know.

syntax The ways words are combined to form acceptable phrases and sentences.

semantics The meaning of words and sentences.

fast mapping A process that helps to explain how young children learn the connection between a word and its referent so quickly.

2. *Children learn words for things and events that interest them.* Parents and teachers can direct young children to experience words in contexts that interest the children; playful peer interactions are especially helpful in this regard.
3. *Children learn words best in responsive and interactive contexts rather than passive contexts.* Children who experience turn-taking opportunities, joint focusing experiences, and positive, sensitive socializing contexts with adults encounter the scaffolding necessary for optimal word learning. They learn words less effectively when they are passive learners.
4. *Children learn words best in contexts that are meaningful.* Young children learn new words more effectively when new words are encountered in integrated contexts rather than as isolated facts.
5. *Children learn words best when they access clear information about word meaning.* Children whose parents and teachers are sensitive to words the children might not understand and provide support and elaboration with hints about word meaning learn words better than children whose parents and teachers quickly state a new word and don't monitor whether the child understands its meaning.
6. *Children learn words best when grammar and vocabulary are considered.* Children who experience a large number of words and diversity in verbal stimulation develop a richer vocabulary and better understanding of grammar. In many cases, vocabulary and grammar development are connected.

Advances in Pragmatics

Changes in **pragmatics**, the appropriate use of language in different contexts, also characterize young children's language development (Waxman, 2013). A 6-year-old is simply a much better conversationalist than a 2-year-old. What are some of the improvements in pragmatics during the preschool years?

Young children begin to engage in extended discourse (Akhtar & Herold, 2008). For example, they learn culturally specific rules of conversation and politeness, and they become sensitive to the need to adapt their speech to different settings. Their developing linguistic skills and increasing ability to take the perspective of others contribute to their generation of more competent narratives.

As children grow older, they become increasingly able to talk about things that are not here (Grandma's house, for example) and not now (what happened to them yesterday or might happen tomorrow, for example). A preschool child can tell you what she wants for lunch tomorrow, something that would not have been possible at the two-word stage of language development.

Around age 4 or 5, children learn to change their speech style to suit the situation. For example, even 4-year-old children speak to a 2-year-old differently from the way they talk to a same-aged peer; they use shorter sentences with the 2-year-old. They also speak to an adult differently from a same-aged peer, using more polite and formal language with the adult (Shatz & Gelman, 1973).

Young Children's Literacy

Concern about U.S. children's ability to read and write has led to a careful examination of preschool and kindergarten children's experiences, with the hope that a positive orientation toward reading and writing can be developed early in life (Beatty & Pratt, 2015). Parents and teachers need to provide young children with a supportive environment for the development of literacy skills (Vukelich & others, 2016). Children should be active participants in a wide range of interesting listening, talking, writing, and reading experiences (Lonigan, 2015; Tompkins, 2015).

Instruction should be built on what children already know about oral language, reading, and writing. Further, early precursors of literacy and academic success include language skills, phonological and syntactic knowledge, letter identification, and enjoyment of books (McGhee & Richgels, 2012).

pragmatics The appropriate use of language in different contexts.

What are some strategies for using books effectively with preschool children? Ellen Galinsky (2010) recently emphasized these strategies:

- *Use books to initiate conversation with young children.* Ask them to put themselves in the book characters' places and imagine what they might be thinking or feeling.
- *Use what and why questions.* Ask young children to tell you what they think is going to happen next in a story and then to see if it occurs.
- *Encourage children to ask questions about stories.*
- *Choose some books that play with language.* Creative books on the alphabet, including those with rhymes, often interest young children.

Early Childhood Education

How do early education programs treat children, and how do the children fare? Our exploration of early childhood education focuses on variations in programs, education for children who are disadvantaged, and some controversies in early childhood education.

Variations in Early Childhood Education

There are many variations in the way young children are educated (Bredekamp, 2017; Burchinal & others, 2015; Feeney, Moravcik, & Nolte, 2016). The foundation of early childhood education is the child-centered kindergarten.

The Child-Centered Kindergarten

Nurturing is a key aspect of the **child-centered kindergarten**, which emphasizes educating the whole child and promoting his or her physical, cognitive, and socio-emotional development (Morrison, 2015, 2017). Instruction is organized around the child's needs, interests, and learning styles. Emphasis is on the process of learning, rather than what is learned (Kostelnik & others, 2015). The child-centered kindergarten honors three principles: (1) each child follows a unique developmental pattern; (2) young children learn best through firsthand experiences with people and materials; and (3) play is extremely important in the child's total development. *Experimenting, exploring, discovering, trying out, restructuring, speaking, and listening* are frequent activities in excellent kindergarten programs. Such programs are closely attuned to the developmental status of 4- and 5-year-old children.

The Montessori Approach

Montessori schools are patterned on the educational philosophy of Maria Montessori (1870–1952), an Italian physician-turned-educator who at the beginning of the twentieth century crafted a revolutionary approach to young children's education. The **Montessori approach** is a philosophy of education in which children are given considerable freedom and spontaneity in choosing activities. They are allowed to move from one activity to another as they desire, and the teacher acts as a facilitator rather than a director. The teacher

shows the child how to perform intellectual activities, demonstrates interesting ways to explore curriculum materials, and offers help when the child requests it (Isaacs, 2012). "By encouraging children to make decisions from an early age, Montessori programs seek to develop self-regulated problem solvers who can make choices and manage their time effectively" (Hyson, Copple, & Jones, 2006, p. 14). The number of Montessori schools in the United States has expanded dramatically in recent years, from one school in 1959 to 355 schools in 1970 to more than 4,000 today.

Some developmental psychologists favor the Montessori approach, but others believe that it neglects children's socioemotional development. For example, although the Montessori approach fosters independence and the development of cognitive skills, it deemphasizes verbal interaction between

child-centered kindergarten

Education that involves the whole child by considering both the child's physical, cognitive, and socioemotional development and the child's needs, interests, and learning styles.

Montessori approach An educational philosophy in which children are given considerable freedom and spontaneity in choosing activities and are allowed to move from one activity to another as they desire.

the teacher and child and between peers. Montessori's critics also argue that it restricts imaginative play and that its heavy reliance on self-corrective materials may not adequately allow for creativity and for a variety of learning styles.

Developmentally Appropriate Education

Many educators and psychologists conclude that preschool and young elementary school children learn best through active, hands-on teaching methods such as games and dramatic play. They believe that schools need to accommodate individual differences in children's development. They also argue that schools should focus on promoting children's socioemotional development as well as their cognitive development. Educators refer to this type of schooling as **developmentally appropriate practice (DAP)**, which is based on knowledge of the typical development of children within a particular age span (age-appropriateness), as well as on the uniqueness of the individual child (individual-appropriateness). DAP emphasizes the importance of creating settings that encourage children to be active learners and reflect children's interests and capabilities (Bredekamp, 2017; Follari, 2015). Desired outcomes for DAP include thinking critically, working cooperatively, solving problems, developing self-regulatory skills, and enjoying learning. The emphasis in DAP is on the process of learning rather than on its content.



As an **educator**, how would you design a developmentally appropriate lesson to teach kindergartners the concept of gravity?

Do developmentally appropriate educational practices improve young children's development? Some researchers have found that young children in developmentally appropriate classrooms are likely to feel less stress, be more motivated, be more socially skilled, have better work habits, be more creative, have better language skills, and demonstrate better math skills than children in developmentally inappropriate classrooms (Hart & others, 2003). However, not all studies find DAP to have significant positive effects (Hyson, Copple, & Jones, 2006). Among the reasons that it is difficult to generalize about research on developmentally appropriate education is that individual programs often vary, and developmentally appropriate education is an evolving concept. Recent changes in the concept have given more attention to sociocultural factors and the teacher's active involvement and implementation of systematic intentions, as well as how strongly academic skills should be emphasized and how they should be taught.

Education for Young Children Who Are Disadvantaged

For many years, U.S. children from low-income families did not receive any education before they entered the first grade. Often when they began first grade they were already several steps behind their classmates in readiness to learn. In the summer of 1965, the federal government began striving to break the cycle of poverty and poor education for young children through **Project Head Start**. Head Start is a compensatory program designed to give children from low-income families the opportunity to acquire skills and experiences that are important for success in school (Hustedt, Friedman, & Barnett, 2012; Miller, Farkas, & Duncan, 2016; Zigler & Styfco, 2010). After almost half a century, Head Start continues to be the largest federally funded



Larry Page and Sergey Brin, founders of Google, say their years at Montessori schools were a major factor in their success (International Montessori Council, 2006). They taught them to be self-directed and self-starters (ABC News, 2005) and their Montessori experiences encouraged them to think for themselves and to develop their own interests.

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developmentally appropriate practice (DAP) Education that focuses on the typical developmental patterns of children (age appropriateness) and the uniqueness of each child (individual appropriateness).

Project Head Start A government-funded program that is designed to provide children from low-income families the opportunity to acquire the skills and experiences important for school success.

program for U.S. children, with almost 1 million children enrolled in it annually (Hagen & Lamb-Parker, 2008). In 2007, 3 percent of Head Start children were 5 years old, 51 percent were 4 years old, 36 percent were 3 years old, and 10 percent were under age 3 (Administration for Children & Families, 2008).

Mixed results have been found for Head Start. A recent study found that one year of Head Start was linked to higher performance in early math, early reading, and receptive vocabulary (Miller, Farkas, & Duncan, 2016). In another recent study, the best results occurred for Head Start children who had low initial cognitive ability, whose parents had low levels of education, and who attended Head Start more than 20 hours a week (Lee & others, 2014). It is not unusual to find early gains, then see them go away in elementary school. For example, a national evaluation of Head Start revealed that the program had a positive influence on the language and cognitive development of 3- and 4-year-olds (Puma & others, 2010). However, by the end of the first grade, there were few lasting outcomes.

Early Head Start was established in 1995 to serve children from birth to 3 years of age. In 2007, half of all new funds appropriated for Head Start programs were used for the expansion of Early Head Start. One study revealed that Early Head Start had a protective effect on risks young children might experience in parenting stress, language development, and self-control (Ayoub, Vallotton, & Mastergeorge, 2011). However, some studies have revealed mixed effects for Early Head Start (Love & others, 2013).

Two recent studies confirmed the role of parenting in the success of Head Start programs. In a national study, when Head Start centers promoted greater parental involvement and the parents got more involved, the parents engaged in increased cognitive stimulation of their children (Ansari & Gershoff, 2016). In turn, these parental behaviors were linked to children's gains in academic skills. In a second study, home visit quality variation (greater emphasis on children's development in early Head Start programs) was associated with improved parenting quality (more parental engagement and collaboration) and positive child outcomes (vocabulary development gains) (Roggman & others, 2016).

More attention needs to be given to developing consistently high-quality Head Start programs (Hillemeier & others, 2013). One person who is strongly motivated to make Head Start a valuable learning experience for young children from disadvantaged backgrounds is Yolanda Garcia. To read about her work, see *Careers in Life-Span Development*.



How Would You...?

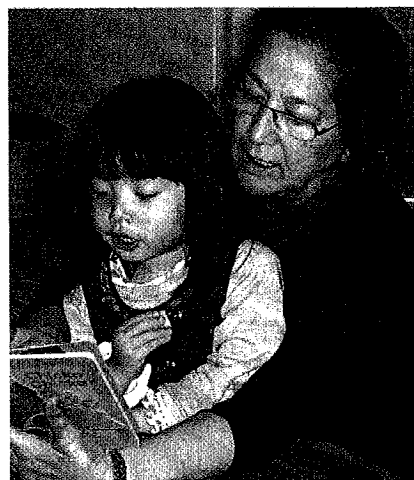
As a **health-care professional**, how would you explain the importance of including health services as part of an effective Head Start program?

Careers in life-span development

Yolanda Garcia, Director of Children's Services, Head Start

Yolanda Garcia has been the director of the Children's Services Department of the Santa Clara, California, County Office of Education since 1980. As director, she is responsible for managing child development programs for 2,500 3- to 5-year-old children in 127 classrooms. Her training includes two master's degrees: one in public policy and child welfare from the University of Chicago and another in education administration from San Jose State University.

Garcia has served on many national advisory committees that have produced improvements in the staffing of Head Start programs. Most notably, she served on the Head Start Quality Committee that recommended the development of Early Head Start and revised performance standards for Head Start programs. Garcia currently is a member of the American Academy of Science Committee on the Integration of Science and Early Childhood Education.



Yolanda Garcia, Director of WestEd's E3 Institute, works with a child.

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One high-quality early childhood education program (although not a Head Start program) is the Perry Preschool program in Ypsilanti, Michigan, a two-year preschool program that includes weekly home visits from program personnel. In analyses of the long-term effects of the program, adults who had been in the Perry Preschool program were compared with a control group of adults from the same background who had not received the enriched early childhood education (Schweinhart & others, 2005; Weikert, 1993). Those who had been in the Perry Preschool program had fewer teen pregnancies and better high school graduation rates, and at age 40 they were more likely to be in the workforce, to own a home, and to have a savings account, and they also had fewer arrests.

Controversies in Early Childhood Education

Two current controversies in early childhood education involve (1) what the curriculum for early childhood education should be (Feeney, Moravcik, & Nolte, 2016) and (2) whether preschool education should be universal in the United States (Zigler, Gilliam, & Barnett, 2011).

Controversy Over Curriculum

A current controversy in early childhood education involves what the curriculum for early childhood education should be (Bredekamp, 2017; Morrison, 2015, 2017). On one side are those who advocate a child-centered, constructivist approach much like that emphasized by the National Association for the Education of Young Children (NAEYC), along the lines of developmentally appropriate practice. On the other side are those who advocate an academic, direct-instruction approach.

In practice, many high-quality early-childhood education programs include both academic and constructivist approaches. Many education experts, such as Lilian Katz (1999), though, worry about academic approaches that place too much pressure on young children to achieve and don't provide opportunities to actively construct knowledge. Competent early childhood programs also should focus on both cognitive development *and* socioemotional development, not exclusively on cognitive development (Bredekamp, 2017; NAEYC, 2009).

How Would You...?

As a **psychologist**, how would you advise preschool teachers to balance the development of young children's skills for academic achievement with opportunities for healthy social interaction?



Universal Preschool Education

Another controversy in early childhood education focuses on whether preschool education should be instituted for all U.S. 4-year-old children. Edward Zigler and his colleagues (2006, 2011) argue that the United States should have universal preschool education. They emphasize that quality preschools prepare children for later academic success. Zigler and his colleagues (2006) cite research showing that quality preschool programs decrease the likelihood that children will be retained in a grade or drop out before graduating from high school. They also point to analyses indicating that universal preschool would bring cost savings on the order of billions of dollars because of a diminished need for remedial and justice services (Karoly & Bigelow, 2005).

Critics of universal preschool education argue that the gains attributed to preschool and kindergarten education are often overstated. They especially stress that research has not proven that nondisadvantaged children benefit from attending a preschool. Thus, the critics say it is more important to improve preschool education for young children who are disadvantaged than to fund preschool education for all 4-year-old children. Some critics, especially homeschooling advocates, emphasize that young children should be educated by their parents, not by schools. Thus, universal preschool education remains a subject of controversy.

Summary

Physical Changes

- The average child grows 2½ inches in height and gains between 5 and 7 pounds a year during early childhood, although growth patterns vary from one child to another.
- Some of the brain's growth in early childhood is due to increases in the number and size of dendrites, some to myelination. From ages 3 to 6, the most rapid growth in the brain occurs in the frontal lobes.
- Gross and fine motor skills improve dramatically during early childhood.
- Too many young children in the United States are being raised on diets that are too high in fat. Other nutritional concerns include malnutrition in early childhood and the inadequate diets of many children living in poverty. The child's life should be centered on activities, not meals. Regular exercise should be a part of young children's lives.
- Accidents are the leading cause of death in young children. A special concern is the poor health status of many young children in low-income families. There has been a dramatic increase in HIV/AIDS in young children in developing countries in recent decades.

Cognitive Changes

- According to Piaget, in the preoperational stage children cannot yet perform operations, but they begin to represent the world with symbols, to form stable concepts, and to reason. Preoperational thought is characterized by two substages: symbolic function (2 to 4 years) and intuitive thought (4 to 7 years). Centration and a lack of conservation also characterize the preoperational stage.
- Vygotsky's theory represents a social constructivist approach to development. Vygotsky argues that it is important to discover the child's zone of proximal development to improve the child's learning.
- Young children make substantial strides in executive and sustained attention. Significant improvement in short-term memory occurs during early childhood. Advances

in executive function, an umbrella-like concept that consists of a number of higher-level cognitive processes linked to the development of the prefrontal cortex, occur in early childhood. Theory of mind is the awareness of one's own mental processes and the mental processes of others. Children begin to understand mental states involving perceptions, emotions, and desires at 2 to 3 years of age and at 4 to 5 years of age realize that people can have false beliefs.

Language Development

- Young children increase their grasp of language's rule systems. In terms of phonology, children become more sensitive to the sounds of spoken language. Berko's classic study demonstrated that young children understand morphological rules.
- Preschool children learn and apply rules of syntax, which involves how words should be ordered. In terms of semantics, vocabulary development increases dramatically in early childhood.
- Young children's conversational skills improve in early childhood.
- Early precursors of literacy and academic success develop in early childhood.

Early Childhood Education

- The child-centered kindergarten emphasizes the education of the whole child. The Montessori approach has become increasingly popular. Developmentally appropriate practice focuses on the typical patterns of children (age appropriateness) and the uniqueness of each child (individual appropriateness).
- The U.S. government has tried to break the poverty cycle with programs such as Head Start. Model programs have had positive effects on young children's education.
- Controversy over early childhood education involves what the curriculum should be and whether universal preschool education should be implemented.

Key Terms

animism

centration

child-centered kindergarten

conservation

developmentally appropriate practice (DAP)

egocentrism

executive attention

executive function

fast mapping

intuitive thought substage

Montessori approach

morphology

myelination

operations

phonology

pragmatics

preoperational stage

Project Head Start

semantics

short-term memory

social constructivist approach

sustained attention

symbolic function substage

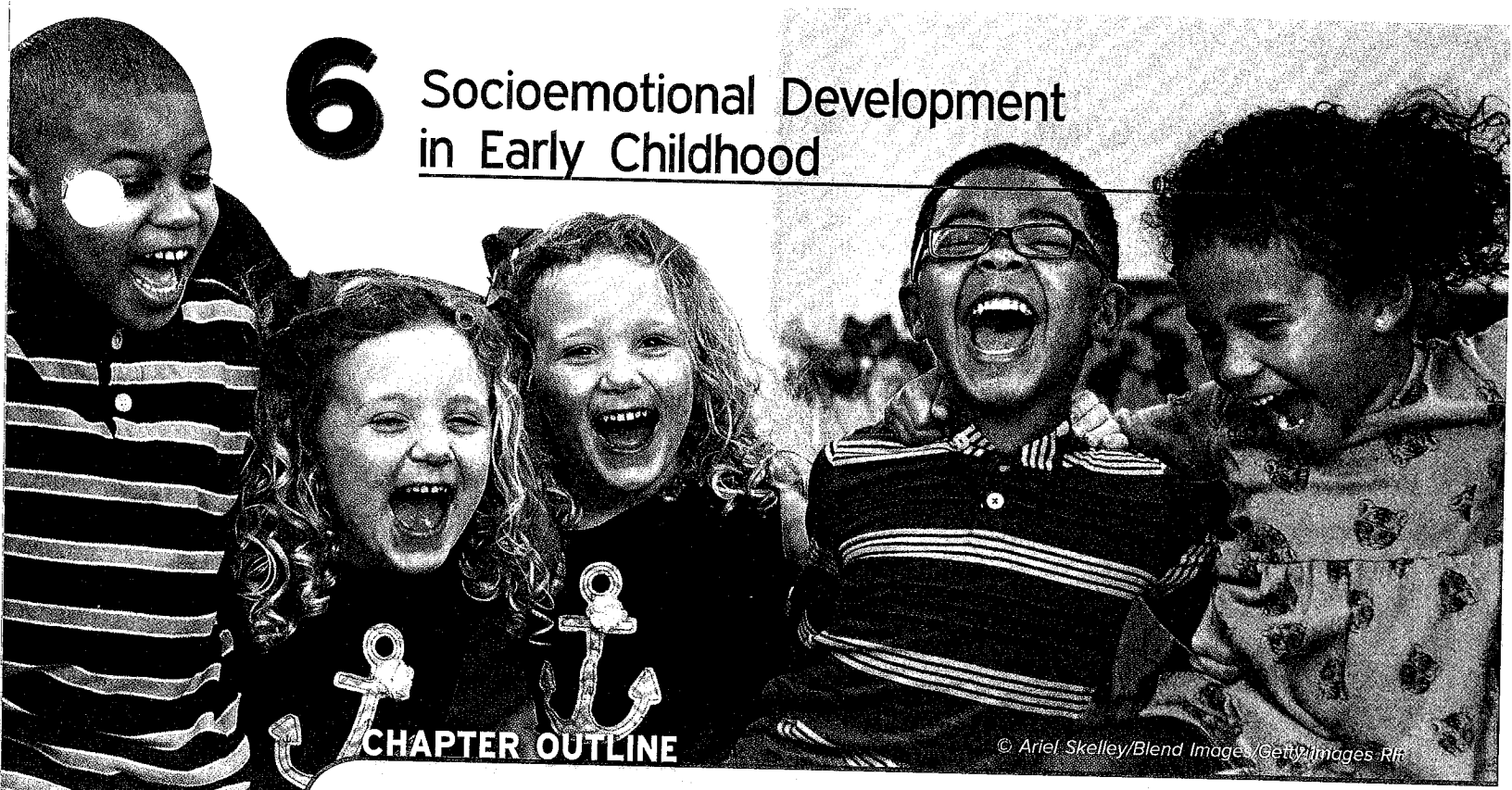
syntax

theory of mind

zone of proximal development (ZPD)

6

Socioemotional Development in Early Childhood



CHAPTER OUTLINE

EMOTIONAL AND PERSONALITY DEVELOPMENT

The Self
Emotional Development
Moral Development
Gender

FAMILIES

Parenting
Child Maltreatment
Sibling Relationships and Birth Order
The Changing Family in a Changing
Society

PEER RELATIONS, PLAY, AND MEDIA/SCREEN TIME

Peer Relations
Play
Media and Screen Time

Stories of Life-Span Development: Nurturing Socioemotional Development

Like many children, Sarah Newland loves animals. During a trip to the zoo when she was 4 years old, Sarah learned about an animal that was a member of an endangered species, and she became motivated to help. With her mother's guidance, she baked lots of cakes and cookies, then sold them on the sidewalk outside her home. She was excited about making \$35 from the cake and cookie sales, and she mailed the money to the World Wildlife Fund. Several weeks later, the fund wrote back to Sarah requesting more money. Sarah was devastated because she thought she had taken care of the animal problem. Her mother consoled her and told her that the endangered animal problem and many others are so big that it takes ongoing help from many people to solve them. Her mother's guidance when Sarah was a young child must have worked because by the end of elementary school, Sarah had begun helping out at a child-care center and working with her mother to provide meals to the homeless.

Sensitive parents like Sarah's mother can encourage young children's sense of morality. Just as parents support and guide their children to become good readers, musicians, or athletes, they also play key roles in promoting young children's socioemotional development. (Source: Kantrowitz & Namuth, 1991). ■

Emotional and Personality Development

Many changes characterize young children's socioemotional development in early childhood. Children's developing minds and social experiences produce remarkable advances in the development of the self, emotional maturity, moral understanding, and gender awareness.

The Self

During the second year of life, children make considerable progress in self-recognition. In the early childhood years, young children develop in many ways that enable them to enhance their self-understanding.

Initiative Versus Guilt

Erik Erikson's (1968) eight developmental stages are encountered during certain time periods in the human life span. Erikson's first stage, trust versus mistrust, describes what he considers to be the main developmental task of infancy. According to Erikson, the psychosocial stage associated with early childhood is *initiative versus guilt*. At this point in development, children have become convinced that they are persons of their own; during early childhood, they begin to discover what kind of person they will become. They identify intensely with their parents, who most of the time appear to them to be powerful and beautiful, though often unreasonable, disagreeable, and sometimes even dangerous. During early childhood, children use their perceptual, motor, cognitive, and language skills to make things happen. They have a surplus of energy that permits them to forget failures quickly and to approach new areas that seem desirable—even if dangerous—with undiminished zest and an increased sense of direction. On their own initiative, then, children at this stage exuberantly move out into a wider social world.

The great governor of initiative is conscience. Children's initiative and enthusiasm may bring them not only rewards but also guilt, which lowers self-esteem.

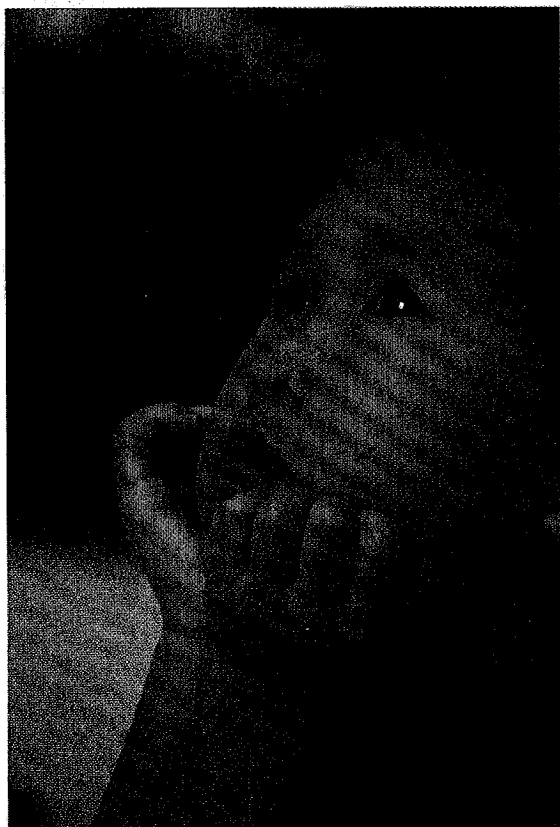
Self-Understanding and Understanding Others

Recent research studies have revealed that young children are more psychologically aware—of themselves and others—than was formerly thought (Thompson, 2015). This increased awareness reflects young children's expanding psychological sophistication.

Self-Understanding In Erikson's portrait of early childhood, the young child clearly has begun to develop **self-understanding**, which is the representation of self, the substance and content of self-conceptions (Harter, 2012, 2016). Though not the whole of personal identity, self-understanding provides its rational underpinnings. Mainly through interviews, researchers have probed children's conceptions of many aspects of self-understanding (Harter, 2016).

Early self-understanding involves self-recognition. In early childhood, young children think the self can be described by material characteristics such as size, shape, and color. They distinguish themselves from others through physical and material attributes. Says 4-year-old Sandra,

self-understanding The child's cognitive representation of self, the substance and content of the child's self-conceptions.



What characterizes young children's self-understanding?

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"I'm different from Jennifer because I have brown hair and she has blond hair." Says 4-year-old Ralph, "I am different from Hank because I am taller, and I am different from my sister because I have a bicycle." Physical activities are also a central component of the self in early childhood (Keller, Ford, & Meacham, 1978). For example, preschool children often describe themselves in terms of activities such as play. In sum, in early childhood, children often provide self-descriptions that involve body attributes, material possessions, and physical activities.

Although young children mainly describe themselves in terms of concrete, observable features and activities, at age 4 to 5, as they hear others use psychological trait and emotion terms, they begin to include these in their self-descriptions (Marsh, Ellis, & Craven, 2002). Thus, in a self-description a 4-year-old might say, "I'm not scared. I'm always happy."

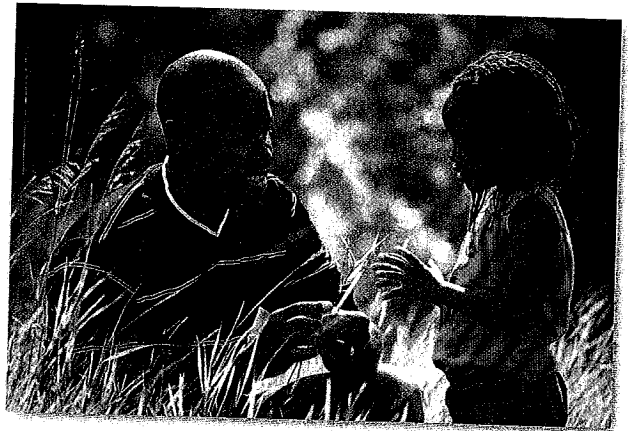
Young children's self-descriptions are typically unrealistically positive, as reflected in the comment of the 4-year-old who says he is always happy, which he is not (Harter, 2012, 2016). They express this optimism because they don't yet distinguish between their desired competence and their actual competence, tend to confuse ability and effort (thinking that differences in ability can be changed as easily as can differences in effort), don't engage in spontaneous social comparison of their abilities with those of others, and tend to compare their present abilities with what they could do at an earlier age (which usually makes them look quite good).

Understanding Others Children also make advances in their understanding of others (Harter, 2012, 2016; Mills & Elashi, 2014; Thompson, 2015). Young children's theory of mind includes understanding that other people have emotions and desires. And at age 4 to 5 children not only start describing themselves in terms of psychological traits but also begin to perceive others in terms of psychological traits. Thus, a 4-year-old might say, "My teacher is nice."

An important part of children's socioemotional development is gaining an understanding that people don't always give accurate reports of their beliefs (Mills, 2013; Mills & Elashi, 2014). Researchers have found that even 4-year-olds understand that people may make statements that aren't true to obtain what they want or to avoid trouble (Lee & others, 2002). A recent study compared preschool children's trust in the accuracy of an expert's comments (Landrum, Mills, & Johnston, 2013). In this study, in one condition, 5-year-olds trusted the expert's claim more than did 3-year-olds. However, in other conditions, preschoolers tended to trust a nice non-expert more than a mean expert, indicating that young children often are more likely to believe someone who is nice to them than someone who is an expert.

Another important aspect of understanding others involves understanding joint commitments. As children approach their third birthday, their collaborative interactions with others increasingly involve obligations to the partner (Tomasello, 2014). One study revealed that 3-year-olds, but not 2-year-olds, recognized when an adult is committed and when they themselves are committed to joint activity that involves obligation to a partner (Grafenhain & others, 2009).

Both the extensive theory of mind research and the recent research on young children's social understanding underscore that young children are not as egocentric as Piaget envisioned (Thompson, 2012). Piaget's concept of egocentrism has become so ingrained in people's thinking about young children that too often the current research on social awareness in infancy and early childhood has been overlooked. Research increasingly shows that young children are more socially sensitive and perceptive than previously envisioned, suggesting that parents and teachers can help them to better understand and interact in the social world by how they interact with them



Young children are more psychologically aware of themselves and others than used to be thought. Some children are better than others at understanding people's feelings and desires—and, to some degree, these individual differences are influenced by conversations caregivers have with young children about feelings and desires.

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(Thompson, 2015). If young children are seeking to better understand various mental and emotional states (intentions, goals, feelings, desires) that they know underlie people's actions, then talking with them about these internal states can improve young children's understanding of them (Thompson, 2011, 2015).

However, there is ongoing debate about whether young children are socially sensitive or basically egocentric. Ross Thompson (2012, 2015) comes down on the side of viewing young children as socially sensitive while Susan Harter (2012, 2016) argues that there is still evidence to support the conclusion that young children are essentially egocentric.

Emotional Development

The young child's growing awareness of self is linked to the ability to feel an expanding range of emotions. Young children, like adults, experience many emotions during the course of a day. Their emotional development allows them to try to make sense of other people's emotional reactions and to begin to control their own emotions (Rogers & others, 2016; Thompson, 2015).

Expressing Emotions

Recall that even young infants experience emotions such as joy and fear, but to experience *self-conscious emotions* children must be able to refer to themselves and be aware of themselves as distinct from others (Lewis, 2010, 2014, 2015, 2016). Pride, shame, embarrassment, and guilt are examples of self-conscious emotions. These emotions do not appear to develop until self-awareness appears around 18 months of age.

During the early childhood years, emotions such as pride and guilt become more common. They are especially influenced by parents' responses to children's behavior. For example, a young child may experience shame when a parent says, "You should feel bad about biting your sister." One study revealed that young children's emotional expression was linked to their parents' own expressive behavior (Nelson & others, 2012). In this study, mothers who expressed a high incidence of positive emotions and a low incidence of negative emotions at home had children who were observed to use more positive emotion words during mother-child interactions than did the children of mothers who expressed few positive emotions at home.

Understanding Emotions

Among the most important changes in emotional development in early childhood is an increased understanding of emotions (Calkins & Perry, 2016; Denham, Bassett, & Wyatt, 2015; Karstad & others, 2015). Young children increasingly understand that certain situations are likely to evoke particular emotions, facial expressions indicate specific emotions, and emotions affect behavior and can be used to influence others. One study also found that young children's emotional understanding was linked to an increase in prosocial behavior (Ensor, Spencer, & Hughes, 2011). Also, in a recent study of 5- to 7-year-olds, understanding others' emotions was linked to the children's emotion regulation (Hudson & Jacques, 2014).

Between ages 2 and 4, children considerably increase the number of terms they use to describe emotions. During this time, they are also learning about the causes and consequences of feelings (Denham & others, 2012).

When they are 4 to 5 years old, children show an increased ability to reflect on emotions. They also begin to understand that the same event can elicit different feelings in different people. Moreover, they show growing awareness that they need to manage their emotions to meet social standards. And by age 5 most children can accurately determine emotions that are produced by challenging circumstances and describe strategies they might call on to cope with everyday stress (Cole & others, 2009).

Regulating Emotions

Emotion regulation is an important aspect of development. In particular, it plays a key role in children's ability to manage the demands and conflicts they face in interacting

with others (Durlak, Domitrovich, & Gullotta, 2015; Eisenberg, Spinrad, & Valiente, 2016; Thompson, 2015).

Many researchers consider the growth of emotion regulation in children as fundamental to the development of social competence (Calkins & Perry, 2016; Cole, 2016; Denham, Bassett, & Wyatt, 2015; Thompson, 2015). Emotion regulation can be conceptualized as an important component of self-regulation or of executive function. Recall that executive function is increasingly thought to be a key concept in describing the young child's higher-level cognitive functioning (Carlson, Zelazo, & Faja, 2013; Griffin, Freund, & McCardle, 2015). Cybelle Raver and her colleagues (Blair & Raver, 2012, 2015; Blair, Raver, & Finegood, 2016; McCoy & Raver, 2011; Raver & others, 2011, 2012, 2013; Zhai, Raver, & Jones, 2012) are using interventions, such as increasing caregiver emotional expressiveness, to improve young children's emotion regulation and reduce behavior problems in Head Start families.

Emotion-Coaching and Emotion-Dismissing

Parents Parents can play an important role in helping young children regulate their emotions (Cole & Tan, 2015). Depending on how they talk with their children about emotion, parents can be described as taking an *emotion-coaching* or an *emotion-dismissing* approach (Gottman, 2016). The distinction between these approaches is most evident in the way the parent deals with the child's negative emotions (anger, frustration, sadness, and so on). *Emotion-coaching parents* monitor their children's emotions, view their children's negative emotions as opportunities for teaching, assist them in labeling emotions, and coach them in how to deal effectively with emotions. In contrast, *emotion-dismissing parents* view their role as to deny, ignore, or change negative emotions. Emotion-coaching parents interact with their children in a less rejecting manner, use more scaffolding and praise, and are more nurturant than are emotion-dismissing parents. Moreover, children of emotion-coaching parents are better at soothing themselves when they get upset, are more effective in regulating their negative affect, focus their attention better, and have fewer behavior problems than do children of emotion-dismissing parents. Recent studies found that fathers' emotion coaching was related to children's social competence (Baker, Fenning, & Crnic, 2011) and that mothers' emotion coaching was linked to less oppositional behavior (Dunsmore, Booker, & Ollendick, 2013).

Parents' knowledge of their children's emotional world can help them to guide their children's emotional development and teach them how to cope effectively with problems (Denham, Bassett, & Wyatt, 2015). For example, one study found that mothers' knowledge about what distresses and comforts their children predicts the children's coping, empathy, and prosocial behavior (Vinik, Almas, & Grusec, 2011).

Regulation of Emotion and Peer Relations Emotions play a strong role in determining the success of a child's peer relationships (Denham, Bassett, & Wyatt, 2015). Specifically, the ability to modulate one's emotions is an important skill that benefits children in their relationships with peers. Moody and emotionally negative children are more likely to experience rejection by peers, whereas emotionally positive children are more popular.



What are some differences between emotion-coaching and emotion-dismissing parents?

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Moral Development

Unlike a crying infant, a screaming 5-year-old is likely to be considered responsible for making a fuss. The parents may worry about whether the 5-year-old is a "bad" child. Although there are some who view children as innately good, many

moral development Development that involves thoughts, feelings, and actions regarding rules and conventions about what people should do in their interactions with other people.

heteronomous morality The first stage of moral development in Piaget's theory, occurring from approximately 4 to 7 years of age. Justice and rules are conceived of as unchangeable properties of the world, beyond the control of people.

autonomous morality The second stage of moral development in Piaget's theory, displayed by older children (about 10 years of age and older). The child becomes aware that rules and laws are created by people and that in judging an action, one should consider the actor's intentions as well as the consequences.

immanent justice The expectation that, if a rule is broken, punishment will be meted out immediately.

developmental psychologists believe that just as parents help their children become good readers, musicians, or athletes, parents must nurture goodness and help their children develop morally.

Moral development involves the development of thoughts, feelings, and behaviors regarding rules and conventions about what people should do in their interactions with other people. Major developmental theories have focused on different aspects of moral development (Vozzola, 2014).

Moral Feelings

Feelings of anxiety and guilt are central to the account of moral development provided by Freud's psychoanalytic theory. According to Freud, children attempt to reduce anxiety, avoid punishment, and maintain parental affection by identifying with their parents and internalizing their standards of right and wrong, thereby developing the *superego*, the moral element of the personality.

Freud's ideas are not backed by research, but guilt certainly can motivate moral behavior. Other emotions, however, also contribute to moral development, including positive feelings. One important example is *empathy*, or responding to another person's feelings with an emotion that echoes those feelings (Denham, Bassett, & Wyatt, 2015).

Infants have the capacity for some purely empathic responses, but empathy often requires the ability to discern another person's emotional states, or what is called *perspective taking*. Learning how to identify a wide range of emotional states in others, and to anticipate what kinds of action will improve another person's emotional state, help to advance children's moral development (Thompson, 2015).

Moral Reasoning

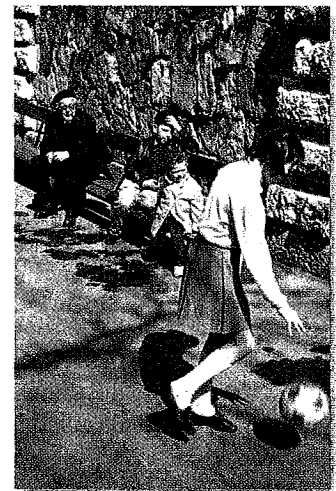
Interest in how children think about moral issues was stimulated by Piaget (1932), who extensively observed and interviewed children from ages 4 through 12. Piaget watched children play marbles to learn how they used and thought about the game's rules. He also asked children about ethical issues—thrift, lies, punishment, and justice, for example. He concluded that children go through two distinct stages in how they think about morality:

- From ages 4 to 7, children display **heteronomous morality**, the first stage of moral development in Piaget's theory. Children think of justice and rules as unchangeable properties, beyond the control of people.
- From ages 7 to 10, children are in a period of transition, showing some features of the first stage of moral reasoning and some of the second stage, autonomous morality.
- From about age 10 and older, children show **autonomous morality**. They become aware that rules and laws are created by people, and in judging an action they consider the actor's intentions as well as the action's consequences.

Because young children are heteronomous moralists, they judge the rightness or goodness of behavior by considering its consequences, not the intentions of the actor. For example, to the heteronomous moralist, breaking twelve cups accidentally is worse than breaking one cup intentionally. As children develop into moral autonomists, intentions become more important than consequences.

The heteronomous thinker also believes that rules are unchangeable and are handed down by all-powerful authorities. When Piaget suggested to young children that they use new rules in a game of marbles, they resisted. By contrast, older children—moral autonomists—accept change and recognize that rules are merely conventions that are subject to change.

The heteronomous thinker also believes in **immanent justice**, the concept that if a rule is broken, punishment will be meted out immediately. The young child believes that a violation is connected automatically



Piaget extensively observed and interviewed 4- to 12-year-old children as they played games to learn how they used and thought about the games' rules.

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to its punishment. Thus, young children often look around worriedly after doing something wrong, expecting the inevitable punishment. Immanent justice also implies that if something unfortunate happens to someone, that person must have transgressed earlier. Older children, who are moral autonomists, recognize that punishment occurs only if someone witnesses the wrongdoing and that, even then, punishment is not inevitable.

How do these changes in moral reasoning occur? Piaget argued that as children develop, they become more sophisticated in their thinking about social matters, especially about the possibilities and conditions of cooperation. Piaget stressed that this social understanding comes about through the mutual give-and-take of peer relations. In the peer group, where others have power and status similar to the child's, plans are negotiated and coordinated, and disagreements are reasoned about and eventually settled. Parent-child relations, in which parents have the power and children do not, are less likely to advance moral reasoning, because rules are often handed down in an authoritarian manner.

Earlier you read about Ross Thompson's view that young children are not as egocentric as Piaget envisioned. Thompson (2012) recently further elaborated on this view, arguing that recent research indicates that young children often show a non-egocentric awareness of others' goals, feelings, and desires and how such internal states are influenced by the actions of others. These links between advances in moral understanding and theory of mind research indicate that young children possess cognitive resources that allow them to be aware of others' intentions and to know when someone violates a moral prohibition. One study of 3-year-olds found that they were less likely to offer assistance to an adult they had previously observed being harmful to another person (Vaish, Carpenter, & Tomasello, 2010). However, because of limitations in their self-control skills, social understanding, and cognitive flexibility, young children's moral advancements often are inconsistent and vary across situations. They still have a long way to go before they are able to develop a consistent moral character and make ethical judgments.



How Would You...?

As a **health-care professional**, how would you expect a child in the heteronomous stage of moral development to judge the behaviors of a doctor who unintentionally caused pain to a child during a medical procedure?

Moral Behavior

The behavioral and social cognitive approach to development focuses on moral behavior rather than moral reasoning. It holds that the processes of reinforcement, punishment, and imitation explain the development of moral behavior. When children are rewarded for behavior that is consistent with laws and social conventions, they are likely to repeat that behavior. When models who behave morally are provided, children are likely to adopt their actions. And when children are punished for immoral behavior, those behaviors are likely to be reduced or eliminated. However, because punishment may have adverse side effects, it needs to be used judiciously and cautiously.

If a mother has rewarded a 4-year-old boy for telling the truth when he broke a glass at home, does this mean he is likely to tell the truth to his preschool teacher when he knocks over a vase and breaks it? Not necessarily; the situation influences behavior. More than half a century ago, a comprehensive study of thousands of children in many situations—at home, at school, and at church, for example—found that a totally honest child is virtually nonexistent; so is a child who cheats in all situations (Hartshorne & May, 1928–1930). Behavioral and social cognitive researchers emphasize that what children do in one situation is often only weakly related to what they do in other situations. A child might cheat in class but not in a game; a child might steal a piece of candy when alone but not when others are present.

How will this child's moral thinking about stealing a cookie differ according to whether he is in Piaget's heteronomous or autonomous stage?

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Social cognitive theorists also emphasize that the ability to resist temptation is closely tied to the development of self-control (Mischel, 2004), which involves learning to delay gratification. According to social cognitive theorists, cognitive factors are important in the child's development of self-control (Bandura, 2010a).

Gender

Gender refers to the characteristics of people as females and males. **Gender identity** is the sense of being male or female, which most children acquire by the time they are 3 years old. **Gender roles** are sets of expectations that prescribe how females or males should think, act, and feel. During the preschool years, most children increasingly act in ways that match their culture's gender roles.

How do these and other gender differences come about? Biology clearly plays a role. Among the possible biological influences are chromosomes, hormones, and evolution (Buss, 2015; Hines, 2015; Johnson, 2017). However, our focus in this chapter is on the social aspects of gender.

Social Influences

Many social scientists do not locate the cause of psychological gender differences in biological dispositions. Rather, they argue that these differences are due to social experiences (Matlin, 2012). Their explanations include both social and cognitive theories.

Social Theories of Gender Three main social theories of gender have been proposed: social role theory, psychoanalytic theory, and social cognitive theory. Alice Eagly (2001, 2010, 2012) proposed **social role theory**, which states that gender differences result from the contrasting roles of women and men. In most cultures around the world, women have less power and status than men do, and they control fewer resources (Helgeson, 2017). Compared with men, women perform more domestic work, spend fewer hours in paid employment, receive lower pay, and are more thinly represented in the highest levels of organizations. In Eagly's (2010, 2012) view, as women adapted to roles with less power and less status in society, they showed more cooperative, less dominant profiles than men did. Thus, the social hierarchy and division of labor are important causes of gender differences in power, assertiveness, and nurture (Eagly & Wood, 2016).

The **psychoanalytic theory of gender** stems from Freud's view that the preschool child develops a sexual attraction to the opposite-sex parent. This is the process known as the Oedipus (for boys) or Electra (for girls) complex. At age 5 or 6, the child renounces this attraction because of anxious feelings. Subsequently, the child identifies with the same-sex parent, unconsciously adopting that parent's characteristics. However, developmental psychologists have observed that gender development does not proceed in the manner that Freud proposed (Callan, 2001). Children become gender-typed much earlier than age 5 or 6, and they become masculine or feminine even when the same-sex parent is not present in the family.

The social cognitive approach provides an alternative explanation. According to the **social cognitive theory of gender**, children's gender development occurs through observation and imitation of what other people say and do, and through being rewarded and punished for gender-appropriate and gender-inappropriate behavior (Bussey & Bandura, 1999). From birth onward, males and females are treated differently. When infants and toddlers show gender differences, adults tend to reward them. Parents often use rewards and punishments to teach their daughters to be feminine ("Karen, you are being a good girl when you play gently with your doll") and their sons to be masculine ("Keith, a boy as big as you are is not supposed to cry"). Parents, however, are only one of many

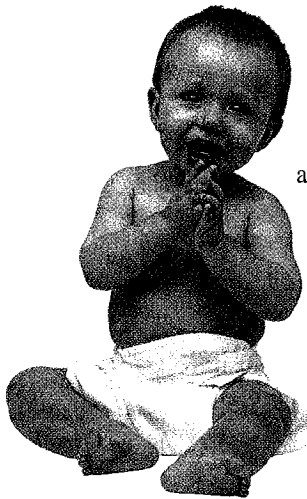
gender identity The sense of being male or female, which most children acquire by the time they are 3 years old.

gender roles Sets of expectations that prescribe how females or males should think, act, and feel.

social role theory A theory that gender differences result from the contrasting roles of men and women.

psychoanalytic theory of gender A theory deriving from Freud's view that the preschool child develops a sexual attraction to the opposite-sex parent, by approximately 5 or 6 years of age renounces this attraction because of anxious feelings, and subsequently identifies with the same-sex parent, unconsciously adopting the same-sex parent's characteristics.

social cognitive theory of gender A theory emphasizing that children's gender development occurs through the observation and imitation of gender behavior and through the rewards and punishments children experience for gender-appropriate and gender-inappropriate behavior.



First imagine that this is a photograph of a baby girl. *What expectations would you have of her?* Then imagine that this is a photograph of a baby boy. *What expectations would you have of him?*

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sources from which children learn gender roles (Leaper, 2015). Culture, schools, peers, the media, and other family members also provide gender role models (Hyde & Else-Quest, 2013). For example, children learn about gender by observing other adults in the neighborhood and on television. As children grow older, peers become increasingly important. Let's look more closely at the influence of parents and peers.

Parental Influences

Parents influence their children's gender development by action and by example. (Helgeson, 2017; Leaper & Farkas, 2015; Liben, Bigler, & Hilliard, 2014). Both mothers and fathers are psychologically important to their children's gender development (Tenenbaum & May, 2014). Cultures around the world, however, can vary in the roles expected for mother and fathers (Chen & Liu, 2016). A research review provided these conclusions (Bronstein, 2006):

- *Mothers' socialization strategies.* In many cultures, mothers socialize their daughters to be more obedient and responsible than their sons. They also place more restrictions on their daughters' autonomy.
- *Fathers' socialization strategies.* Fathers show more attention to their sons than to their daughters, engage in more activities with their sons, and put forth more effort to promote their sons' intellectual development.

Thus, according to Bronstein (2006, pp. 269–270), “Despite an increased awareness in the United States and other Western cultures of the detrimental effects of gender stereotyping, many parents continue to foster behaviors and perceptions that are consonant with traditional gender role norms.”

Peer Influences

Parents provide the earliest discrimination of gender roles, but before long, peers join the process of responding to and modeling masculine and feminine behavior (Leaper, 2015). In fact, peers become so important to gender development that the playground has been described as “gender school” (Luria & Herzog, 1985).

Peers extensively reward and punish gender behavior (Rubin, Bukowski, & Bowker, 2015). For example, when children play in ways that the culture considers sex-appropriate, their peers tend to reward them. But peers often reject children who act in a manner that is considered more characteristic of the other gender (Handrinos & others, 2012). A little girl who brings a doll to the park may find herself surrounded by new friends; a little boy who does the same thing might be jeered at. However, there is greater pressure for boys to conform to a traditional male role than for girls to conform to a traditional female role (Fagot, Rodgers, & Leinbach, 2000). For example, a preschool girl who wants to wear boys' clothing receives considerably more approval than a boy who wants to wear a dress. The very term “tom-boy” implies broad social acceptance of girls' adopting traditional male behaviors.

Gender molds important aspects of peer relations (Rubin, Bukowski, & Bowker, 2015). It influences the composition of children's groups, the size of groups, and interactions within a group (Maccoby, 1998, 2002).

- *Gender composition of children's groups.* Around age 3, children already show a preference for spending time with same-sex playmates. This preference increases until around age 12, and during the elementary school years children spend a large majority of their free time with children of their own sex (see Figure 1). Observations of children show that they are more likely to play in same-sex than mixed-sex groups. This tendency increases between 4 and 6 years of age.

How Would You...?

As a human development and family studies professional, how would you describe the ways in which parents influence their children's notions of gender roles?

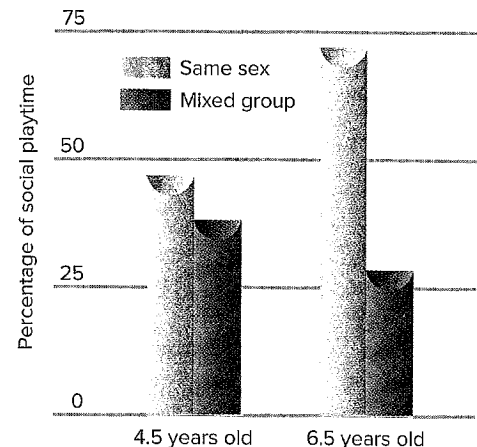


Figure 1
Developmental Changes in Percentage of Time Spent in Same-Sex and Mixed-Group Settings

Observations of children show that they are more likely to play in same-sex than mixed-sex groups. This tendency increases between 4 and 6 years of age.

- *Group size.* From about age 5, boys are more likely to interact socially in larger clusters than girls are. Boys are also more likely to participate in organized group games than girls are. In one study, same-sex groups of six children were permitted to use play materials in any way they wished (Benenson, Apostolaris, & Parnass, 1997). Girls were more likely than boys to play in dyads or triads, while boys were more likely to interact in larger groups and seek to attain a group goal.
- *Interaction in same-sex groups.* Boys are more likely than girls to engage in rough-and-tumble play, competition, conflict, ego displays, risk taking, and seeking dominance. By contrast, girls are more likely to engage in “collaborative discourse,” in which they talk and act in a more reciprocal manner.

Cognitive Influences

Observation, imitation, rewards, and punishment—these are the mechanisms by which gender develops, according to social cognitive theory. Interactions between the child and the social environment are the main keys to gender development. Some critics argue that this explanation pays too little attention to the child’s own mind and understanding, and portrays the child as passively acquiring gender roles (Martin & Ruble, 2010).

One influential cognitive theory is **gender schema theory**, which states that gender typing emerges as children gradually develop gender schemas of what is gender-appropriate and gender-inappropriate in their culture (Halim & others, 2016; Martin & others, 2013). A schema is a cognitive structure, a network of associations that guide an individual’s perceptions. A gender schema organizes the world in terms of female and male. Children are internally motivated to perceive the world and to act in accordance with their developing schemas. Bit by bit, children pick up what is gender-appropriate and gender-inappropriate in their culture, developing gender schemas that shape how they perceive the world and what they remember (Conry-Murray, Kim, & Turiel, 2012). Children are motivated to act in ways that conform with these gender schemas. Thus, gender schemas fuel gender typing.

How Would You...?

As an **educator**, how would you create a classroom climate that promotes healthy gender development for both boys and girls?



Families

Attachment to a caregiver is a key social relationship during infancy, but some experts maintain that secure attachment and the infant’s early experiences have been overdramatized as determinants of life-span development. Social and emotional development is also shaped by other relationships and by temperament, contexts, and social experiences in the early childhood years and later (Kerig, 2016; Stifter & Dollar, 2016). In this section, we discuss aspects of social relationships in early childhood that go beyond attachment.

Parenting

Some recent media accounts portray many parents as unhappy, feeling little joy in caring for their children. However, recent research found that parents were more satisfied with their lives than were nonparents, felt relatively better on a daily basis than did nonparents, and had more positive feelings related to caring for their children than to other daily activities (Nelson & others, 2013). Also, a recent research review concluded that parents are unhappy when they experience more negative emotions, financial problems, sleep problems, and troubled marriages, and that parents are happy when they experience meaning in life, satisfaction of basic needs, more positive emotions, and positive social roles (Nelson, Kushley, & Lyubomirsky, 2014).

Good parenting takes time and effort (Bornstein, 2016). You can’t do it in a minute here and a minute there. You can’t do it with CDs or DVDs. Of course, it’s not just the quantity of time parents spend with

gender schema theory The theory that gender typing emerges as children gradually develop gender schemas of what is gender-appropriate and gender-inappropriate in their culture.

children that is important for children's development—the quality of the parenting is clearly important (Wadsworth & others, 2016). For example, a recent study found that maternal scaffolding, sensitivity, and support for autonomy were linked to better executive function in preschool children (Blair, Raver, & Berry, 2014).

Baumrind's Parenting Styles

Diana Baumrind (1971) stresses that parents should be neither punitive nor aloof. Rather, they should develop rules for their children and be affectionate with them. She has described four parenting styles:

- **Authoritarian parenting** is a restrictive, punitive style in which parents exhort the child to follow their directions and respect their work and effort. The authoritarian parent places firm limits and controls on the child and allows little verbal exchange. For example, an authoritarian parent might say, "You do it my way or else." Authoritarian parents also might spank the child frequently, enforce rules rigidly but not explain them, and show anger toward the child. Children of authoritarian parents are often unhappy, fearful, and anxious about comparing themselves with others; they also fail to initiate activity and have weak communication skills.
- **Authoritative parenting** encourages children to be independent but still places limits and controls on their actions. Extensive verbal give-and-take is allowed, and parents are warm and nurturant toward the child. An authoritative parent might put his arm around the child in a comforting way and say, "You know you shouldn't have done that. Let's talk about how you could handle the situation better next time." Authoritative parents show pleasure and support in response to their children's constructive behavior. They also expect independent, age-appropriate behavior. Children whose parents are authoritative are often cheerful, self-controlled and self-reliant, and achievement-oriented; they tend to maintain friendly relations with peers, cooperate with adults, and cope well with stress. A recent study also found that young children with authoritative parents were less likely to be obese than their counterparts with authoritarian parents (Kakinami & others, 2015).
- **Neglectful parenting** is a style in which the parent is uninvolved in the child's life. Children whose parents are neglectful develop the sense that other aspects of the parents' lives are more important than they are. These children tend to be socially incompetent. Many have poor self-control and don't handle independence well. They frequently have low self-esteem, are immature, and may be alienated from the family. In adolescence, they may show patterns of truancy and delinquency.
- **Indulgent parenting** is a style in which parents are highly involved with their children but place few demands or controls on them. Such parents let their children do what they want. Some parents deliberately rear their children in this way because they believe the combination of warm involvement and few restraints will produce a creative, confident child. However, children whose parents are indulgent rarely learn respect for others and have difficulty controlling their behavior. They might be domineering, egocentric, and noncompliant, and have unsatisfactory peer relations.

These four classifications of parenting involve combinations of acceptance and responsiveness on the one hand and demand and control on the other (Maccoby & Martin, 1983). How these dimensions combine to produce authoritarian, authoritative, neglectful, and indulgent parenting is shown in Figure 2.

Keep in mind that research on parenting styles and children's development is correlational, not causal, in nature. Thus, if a study reveals that authoritarian parenting is linked to higher levels of aggression in children, it may be just as likely that aggressive children elicited authoritarian parenting as it is that authoritarian parenting produced aggressive children (Bush & Peterson, 2013). Also recall that a third factor may influence the correlation between two factors. Thus, in the example of the correlation between authoritarian

authoritarian parenting A restrictive, punitive style in which parents exhort the child to follow their directions and to respect work and effort. The authoritarian parent places firm limits and controls on the child and allows little verbal exchange. Authoritarian parenting is associated with children's social incompetence.

authoritative parenting A parenting style in which parents encourage their children to be independent but still place limits and controls on their actions. Extensive verbal give-and-take is allowed, and parents are warm and nurturant toward the child. Authoritative parenting is associated with children's social competence.

neglectful parenting A style of parenting in which the parent is very uninvolved in the child's life; it is associated with children's social incompetence, especially a lack of self-control.

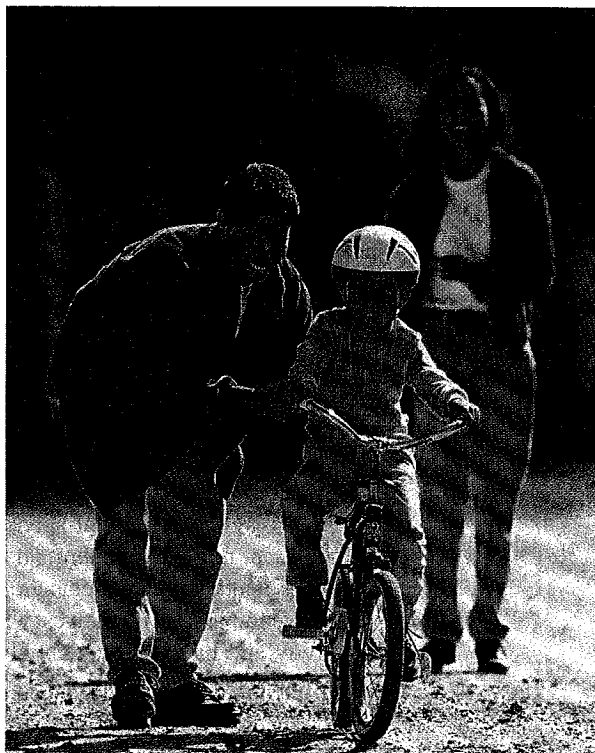
indulgent parenting A style of parenting in which parents are highly involved with their children but place few demands or controls on them. Indulgent parenting is associated with children's social incompetence, especially a lack of self-control.

parenting and aggressive children, possibly authoritarian parents (first factor) and aggressive children (second factor) share genes (third factor) that predispose them to behave in ways that produced the correlation.

Parenting Styles in Context

Among Baumrind's four parenting styles, authoritative parenting clearly conveys the most benefits to the child and to the family as a whole. Do the benefits of authoritative parenting transcend the boundaries of ethnicity, socioeconomic status, and household composition? Although some exceptions have been found, evidence linking authoritative parenting with competence on the part of the child occurs in research across a wide range of ethnic groups, social strata, cultures, and family structures (Steinberg, 2014).

Nevertheless, researchers have found that in some ethnic groups, aspects of the authoritarian style may be associated with more positive outcomes than Baumrind predicts. In the Arab world, many families are very authoritarian, dominated by the father's rule, and children are taught strict codes of conduct and family loyalty (Booth, 2002). As another example, Asian American parents often continue aspects of traditional Asian child-rearing practices that have sometimes been described as authoritarian. The parents exert considerable control over their children's lives. However, Ruth Chao (2001, 2005, 2007; Chao & Otsuki-Clutter, 2011; Chao & Tseng, 2002) argues that the style of parenting used by many Asian American parents is distinct from the domineering control that is characteristic of the authoritarian style. Instead, Chao argues that it reflects concern and involvement in children's lives and is best conceptualized as a type of training. The high academic achievement of Asian American children may be a consequence of their parents' "training" (Stevenson & Zusho, 2002).



	Accepting, responsive	Rejecting unresponsive
Demanding, controlling	Authoritative	Authoritarian
Undemanding, uncontrolling	Indulgent	Neglectful

Figure 2 Classification of Parenting Styles

The four types of parenting styles (authoritative, authoritarian, indulgent, and neglectful) involve the dimensions of acceptance and responsiveness, on the one hand, and demand and control on the other. For example, authoritative parenting involves being both accepting/responsive and demanding/controlling.

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How Would You...?

As a **human development and family studies professional**, how would you characterize the parenting style that prevails within your own family?



How Would You...?

As a **psychologist**, how would you use the research on parenting styles to design a parent education class that teaches effective skills for interacting with young children?

Punishment

Use of corporal punishment is legal in every state in the United States. A national survey of U.S. parents with 3- and 4-year-old children found that 26 percent of parents reported spanking their children frequently, and 67 percent reported yelling at their children frequently (Regalado & others, 2004). A recent study of more than 11,000 U.S. parents indicated that 80 percent of the parents reported spanking their children by the time they reached kindergarten (Gershoff & others, 2012). A cross-cultural comparison found that individuals in the United States and Canada were among those who held the most favorable attitudes toward corporal punishment and were most likely to remember it being used by their parents



According to Ruth Chao, which type of parenting style do many Asian American parents use?

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- Punishment can instill fear, rage, or avoidance. For example, spanking the child may cause the child to avoid being near the parent and to fear the parent.
- Punishment tells children what not to do rather than what to do. Children should be given constructive feedback, such as “Why don’t you try this?”
- Parents might unintentionally become so angry when they are punishing the child that they become abusive.

Most child psychologists recommend handling misbehavior by reasoning with the child, especially explaining the consequences of the child’s actions for others. *Time out*, in which the child is removed from a setting that offers positive reinforcement, can also be effective. For example, when the child has misbehaved, a parent might forbid TV viewing for a specified time.

Debate about the effects of punishment on children’s development continues (Deater-Deckard, 2013; Ferguson, 2013; Gershoff, 2013; Laible, Thompson, & Froimson, 2015; Theunissen, Vogels, & Reijneveld, 2015). Several recent longitudinal studies also have found that physical punishment of young children is associated with higher levels of aggression later in childhood and adolescence (Gershoff & others, 2012; Lansford & others, 2014; Taylor & others, 2010).

However, a recent meta-analysis that focused on longitudinal studies revealed that the negative outcomes of punishment on children’s internalizing and externalizing problems were minimal (Ferguson, 2013). A research review of 26 studies concluded that only severe or predominant use of spanking, not mild spanking, compared unfavorably with alternative discipline practices (Larzelere & Kuhn, 2005). In addition to considering whether physical punishment is mild or out of control, another factor in evaluating effects on children’s development involves cultural contexts. Recently researchers have found that in countries such as Kenya in which physical punishment is considered normal and necessary for handling children’s transgressions, the effects of physical punishment are less harmful than in countries such as Thailand where physical punishment is perceived as more harmful to children’s development (Lansford & others, 2005, 2012).

(see Figure 3) (Curran & others, 2001). Physical punishment is outlawed in 41 countries, with a number of countries increasing the ban on physical punishment mainly to promote children’s rights to protection from abuse and exploitation (Committee on the Rights of the Child, 2014).

What are some reasons for avoiding spanking or similar punishments? They include the following:

- When adults punish a child by yelling, screaming, or spanking, they are presenting children with out-of-control models for handling stressful situations. Children may imitate this behavior.

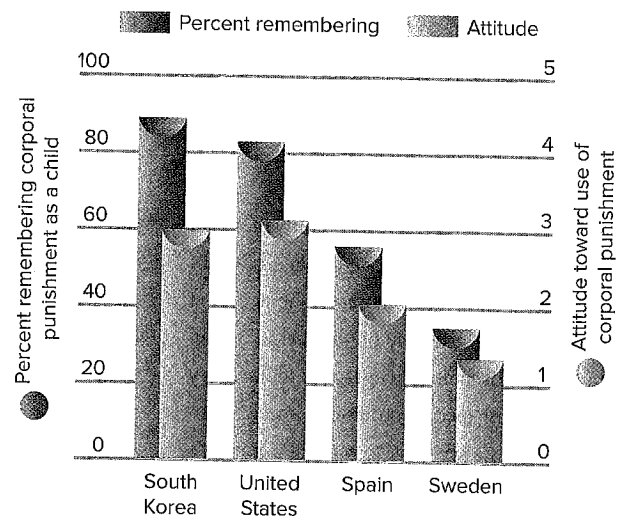


Figure 3 Corporal Punishment in Different Countries

A 5-point scale was used to assess attitudes toward corporal punishment, with scores closer to 1 indicating an attitude against its use and scores closer to 5 suggesting an attitude favoring its use. *Why are studies of corporal punishment correlational studies, and how does that affect their usefulness?*

Thus, in the view of some experts, it is still difficult to determine whether the effects of physical punishment are harmful to children's development, although such a view might be distasteful to some individuals (Ferguson, 2013). Also, as with other research on parenting, research on punishment is correlational in nature, making it difficult to discover causal factors. Also, consider the concept of reciprocal socialization (discussed in the chapter on socioemotional development in infancy), which emphasizes bidirectional child and parent influences. Researchers have found links between children's early behavioral problems and parents' greater use of physical punishment over time (Laible, Thompson, & Froimson, 2015; Sheehan & Watson, 2008). Nonetheless, a large majority of leading experts on parenting conclude that physical punishment has harmful effects on children and should not be used.

In a recent research review, Elizabeth Gershoff (2013) concluded that the defenders of spanking have not produced any evidence that spanking produces positive outcomes for children and that negative outcomes of spanking have been replicated in many studies. Also, physical punishment that involves abuse can be very harmful to children's development, as discussed later in this chapter (Cicchetti & Toth, 2015, 2016).

Coparenting

Coparenting refers to the support that parents give each other in raising a child. Poor coordination between parents, undermining by one parent of the other, lack of cooperation and warmth, and aloofness by one parent are conditions that place children at risk (Galdiolo & Roskam, 2016; Goldberg & Carlson, 2015; Lewin & others, 2015; Parent & others, 2016). In addition, one study revealed that coparenting is more beneficial than either maternal or paternal parenting in terms of children's development of self-control (Karreman & others, 2008). And a recent study found that greater father involvement in young children's play was linked to an increase in supportive coparenting (Jia & Schoppe-Sullivan, 2011). Also, in a recent study, unmarried African American parents who were instructed in coparenting techniques during the prenatal period and also one month after the baby was born improved their rapport, communication, and problem-solving skills when the baby was 3 months old (McHale, Salman-Engin, & Covert, 2015).

Parents who do not spend enough time with their children or who have problems in child rearing can benefit from counseling and therapy. To read about the work of marriage and family counselor Darla Botkin, see *Careers in Life-Span Development*.

Careers in life-span development

Darla Botkin, Marriage and Family Therapist

Darla Botkin is a marriage and family therapist who teaches, conducts research, and engages in marriage and family therapy. She is on the faculty of the University of Kentucky. Botkin obtained a bachelor's degree in elementary education with a concentration in special education, and she went on to receive a master's degree in early childhood education. She spent the next six years working with children and their families in a variety of settings, including child care, elementary school, and Head Start. These experiences led her to recognize the interdependence of the developmental settings



Darla Botkin (left) conducts a family therapy session.

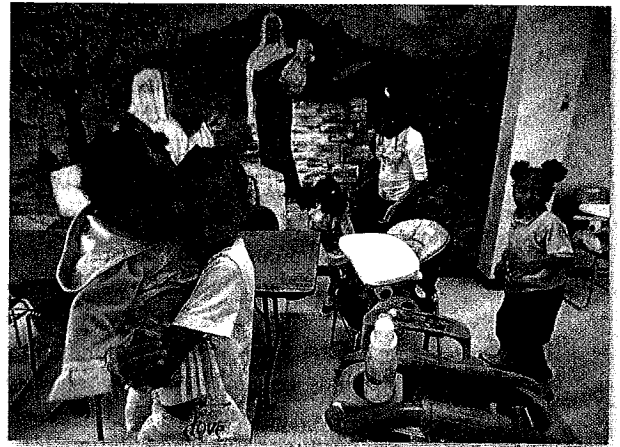
© Dr. Darla Botkin

that children and their parents experience (such as home, school, and work). She returned to graduate school and obtained a Ph.D. in family studies from the University of Tennessee. She then became a faculty member in the Family Studies program at the University of Kentucky. Completing further coursework and clinical training in marriage and family therapy, she became certified as a marriage and family therapist.

Botkin's current interests include working with young children in family therapy, exploring gender and ethnic issues in family therapy, and understanding the role of spirituality in family wellness.

Child Maltreatment

Unfortunately, punishment sometimes leads to the abuse of infants and children (Cicchetti & Toth, 2015, 2016; Jackson & Deye, 2015). In 2013, 679,000 U.S. children were found to be victims of child abuse at least once during that year (U.S. Department of Health and Human Services, 2015). Ninety-one percent of these children were abused by one or both parents. Laws in many states now require physicians and teachers to report suspected cases of child abuse, yet many cases go unreported, especially those involving battered infants.



Eight-year-old Donnique Hein lovingly holds her younger sister, 6-month-old Maria Paschel, after a meal at Laura's Home, a crisis shelter in suburban Cleveland run by the City Mission.

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Types of Child Maltreatment

The four main types of child maltreatment are physical abuse, child neglect, sexual abuse, and emotional abuse (Jackson, Kissoon, & Greene, 2015; National Clearinghouse on Child Abuse and Neglect, 2013):

- *Physical abuse* is characterized by the infliction of physical injury as a result of punching, beating, kicking, biting, burning, shaking, or otherwise harming a child. The parent or other person may not intend to hurt the child; the injury may result from excessive physical punishment (Cicchetti & Toth, 2016; Villodas & others, 2016).
- *Child neglect* is characterized by failure to provide for the child's basic needs. Neglect can be physical (abandonment, for example), educational (allowing chronic truancy, for example), or emotional (marked inattention to the child's needs, for example). Child neglect is by far the most common form of child maltreatment. In every country where relevant data have been collected, neglect occurs up to three times as often as abuse (O'Hara & others, 2016).
- *Sexual abuse* includes fondling of genitals, intercourse, incest, rape, sodomy, exhibitionism, and commercial exploitation through prostitution or production of pornographic materials (Collin-Vezina & others, 2015; Mathews, Lee, & Norman, 2016).
- *Emotional abuse (psychological/verbal abuse/mental injury)* includes acts or omissions by parents or other caregivers that have caused, or could cause, serious behavioral, cognitive, or emotional problems (Shin & others, 2015).

Although any of these forms of child maltreatment may be found separately, they often occur in combination. Emotional abuse is almost always present when other forms are identified.

How Would You...?

As a health-care professional, how would you work with parents during infant and early childhood checkups to prevent child maltreatment?



The Context of Abuse

No single factor causes child maltreatment (Cicchetti & Toth, 2016). A combination of factors, including the culture, characteristics of the family, and developmental characteristics of the child, likely contribute to child maltreatment. Among the family and family-associated characteristics that may contribute to child maltreatment are parenting stress, substance abuse, social isolation, single parenting, and socioeconomic difficulties (especially poverty) (Cicchetti & Toth, 2015). The interactions among all family members need to be considered, regardless of who performs violent acts against the child. For example, even though the father may be the one who physically abuses the child, the behavior of the mother, the child, and siblings should also be evaluated.

Were parents who abuse children abused by their own parents? A 30-year longitudinal study found that offspring of parents who engaged in child maltreatment and

neglect are at risk for engaging in child neglect and sexual maltreatment themselves (Widom, Czaja, & Dumont, 2015). It is estimated that about one-third of parents who were abused themselves when they were young go on to abuse their own children (Cicchetti & Toth, 2006).

Developmental Consequences of Abuse

Among the consequences of maltreatment in childhood and adolescence are poor emotion regulation, attachment problems, problems in peer relations, difficulty in adapting to school, and other psychological problems, such as depression and delinquency (Cicchetti & Toth, 2015, 2016). Compared with their peers, adolescents who experienced abuse or neglect as children are more likely to engage in violent romantic relationships, delinquency, sexual risk taking, and substance abuse (Trickett & others, 2011). And a recent study revealed that a significant increase in suicide attempts before age 18 occurred with repeated child maltreatment (Jonson-Reid, Kohl, & Drake, 2012).

Later, during the adult years, individuals who were maltreated as children are more likely to experience physical illness, mental illness, and sexual problems (Lacelle & others, 2012). A 30-year longitudinal study found that middle-aged adults who had experienced maltreatment during childhood were at increased risk for diabetes, lung disease, malnutrition, and vision problems (Widom & others, 2012). However, this study also found that 75 percent of parents who had experienced maltreatment during childhood had never abused their own children, and thus it is important to note that the majority of people who were abused in childhood are unlikely to abuse their own children. Another study revealed that young adults who had experienced child maltreatment, especially physical abuse, at any age were more likely to be depressed and to engage in suicidal ideation as adults (Dunn & others, 2013). Further, adults who were maltreated as children often have difficulty in establishing and maintaining healthy intimate relationships (Dozier, Stovall-McClough, & Albus, 2009). As adults, maltreated children are also at higher risk for violent behavior toward other adults—especially dating partners and marital partners—as well as for substance abuse, anxiety, and depression (Miller-Perrin, Perrin, & Kocur, 2009).

An important research agenda is to discover how to prevent child maltreatment or intervene in children's lives when they have been maltreated (Cicchetti & Toth, 2015, 2016). In one study of maltreating mothers and their 1-year-olds, two treatments were effective in reducing child maltreatment: (1) home visitation that emphasized improved parenting, coping with stress, and increasing support for the mother; and (2) parent-infant psychotherapy that focused on improving maternal-infant attachment (Cicchetti, Toth, & Rogosch, 2005).



How Would You...?

As an **educator**, how would you explain the potential impact of maltreatment at home on a child's performance in school?

Sibling Relationships and Birth Order

How do developmental psychologists characterize sibling relationships? And how does birth order influence behavior, if at all?

Sibling Relationships

Approximately 80 percent of American children have one or more siblings—that is, sisters and brothers (Dunn, 2007, 2015). If you grew up with siblings, you probably have rich memories of your relationships with them. Two- to 4-year-old siblings in each other's presence have a conflict once every 10 minutes, on average; the rate of conflict declines somewhat from ages 5 to 7 (Kramer, 2006). What do parents do when they encounter siblings having a verbal or physical confrontation? One study revealed that they do one of three things: (1) intervene and try to help them resolve the conflict, (2) admonish or threaten them, or (3) do nothing at all (Kramer & Perozynski, 1999). Of interest is the fact that in families with two siblings ages 2 to 5 the most frequent parental reaction to sibling conflict is to do nothing at all.

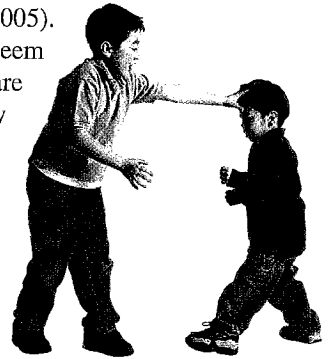
Laurie Kramer (2006), who has conducted a number of research studies on siblings, says that not intervening and letting sibling conflict escalate are not good strategies. She developed a program titled “More Fun with Sisters and Brothers” that teaches 4- to 8-year-old siblings social skills for developing positive interactions (Kramer & Radey, 1997). Among the skills taught in the program are how to appropriately initiate play, how to accept and refuse invitations to play, how to take another person’s perspective, how to deal with angry feelings, and how to manage conflict.

However, conflict is only one of the many dimensions of sibling relations (McHale, Updegraff, & Whiteman, 2013). Sibling relations include helping, sharing, teaching, fighting, compromising, and playing, and siblings can act as emotional supports, rivals, and communication partners. A recent review concluded that sibling relationships in adolescence are not as close, are less intense, and are more egalitarian than in childhood (East, 2009).

Do parents usually favor one sibling over others—and if so, does it make a difference in an adolescent’s development? One study of 384 sibling pairs revealed that 65 percent of their mothers and 70 percent of their fathers showed favoritism toward one sibling (Shebloski, Conger, & Widaman, 2005). When favoritism of one sibling occurred, it was linked to lower self-esteem and sadness in the less-favored sibling. Indeed, equality and fairness are major concerns in regard to siblings’ relationships with each other and how they are treated by their parents (Aldercotte, White, & Hughes, 2016; Campione-Barr, Greer, & Kruse, 2013).

Judy Dunn (2007, 2015), a leading expert on sibling relationships, described three important characteristics of sibling relationships:

1. *The emotional quality of the relationship.* Siblings often express intense emotions—both positive and negative—toward each other. Many children and adolescents have mixed feelings toward their siblings.
2. *The familiarity and intimacy of the relationship.* Siblings typically know each other very well, and this intimacy suggests that they can either provide support or tease and undermine each other, depending on the situation.
3. *The variation in sibling relationships.* Some siblings describe their relationships more positively than others do. Thus, there is considerable variation in sibling relationships. We just noted that many siblings have mixed feelings about each other, but some children and adolescents describe their siblings mainly in warm, affectionate ways, whereas others primarily talk about how irritating and mean a sibling is.



What characterizes children’s sibling relationships?

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Birth Order

Whether a child has older or younger siblings has been linked to the development of certain personality characteristics. For example, a recent review concluded that “first-borns are the most intelligent, achieving, and conscientious, while later-borns are the most rebellious, liberal, and agreeable” (Paulhus, 2008, p. 210). Compared with later-born children, firstborn children have also been described as more adult-oriented, helpful, conforming, and self-controlled. However, when such birth-order differences are reported, they often are small.

What accounts for differences related to birth order? Proposed explanations usually point to variations in interactions associated with a particular position in the family. In one study, mothers became more negative, coercive, and restraining and played less with the firstborn following the birth of a second child (Dunn & Kendrick, 1982).

What about children who don’t have siblings? The popular conception is that an only child is a “spoiled brat” with undesirable characteristics such as dependency, lack of self-control, and self-centered behavior. But researchers present a more positive portrayal, in which only children are often achievement-oriented and display desirable personality characteristics, especially in comparison with later-borns and children from large families (Falbo & Poston, 1993; Jiao, Ji, & Jing, 1996).

So far, our discussion suggests that birth order might be a strong predictor of behavior. However, an increasing number of family researchers stress that, when all

the factors that influence behavior are considered, birth order by itself has limited ability to predict behavior. Think about some of the other important factors in children's lives that influence their behavior. They include heredity, models of competency or incompetency that parents present to children on a daily basis, peer and school influences, socioeconomic and sociohistorical factors, and cultural variations. When someone says that firstborns are always like this but last-borns are always like that, he or she is making overly simplistic statements that do not adequately take into account the complexity of influences on a child's development.

The Changing Family in a Changing Society

Beyond variations in number of siblings, the families that children experience differ in many important ways (Grusec & Hastings, 2015; Morrill, Hawrilenko, & Cordova, 2016; Yu, Cheah, & Calvin, 2016). As shown in Figure 4, the United States has one of the highest percentages of single-parent families in the world. Among two-parent families, there are those in which both parents work, those in which parents have found new spouses after divorce, and those in which the parents are gay or lesbian. Differences in culture and socioeconomic status (SES) also influence families. How do these variations in families affect children?

Working Parents

More than half of U.S. mothers with a child under age 5 are in the labor force, as are more than two-thirds with a child 6 to 17 years of age. Maternal employment is a part of modern life, but its effects are still being debated.

Parental employment can have positive and negative effects on parenting (O'Brien & others, 2014). Recent research indicates that what matters for children's development is the nature of the parents' work rather than whether or not both parents work outside the home (Goldberg & Lucas-Thompson, 2008; Clarke-Stewart & Parke, 2014). For example, a recent study of almost 3,000 adolescents found a negative association of the father's, but not the mother's, unemployment on the adolescents' health (Bacikova-Sleskova, Benka, & Orosova, 2015). Also, a recent study of dual-earner couples found that work-family enrichment experiences had positive outcomes on parenting quality, which in turn was linked to positive child outcomes; by contrast, work-family conflict experiences were associated with poorer parenting quality, which in turn was related to negative child outcomes (Vieira & others, 2016).



How does work affect parenting?

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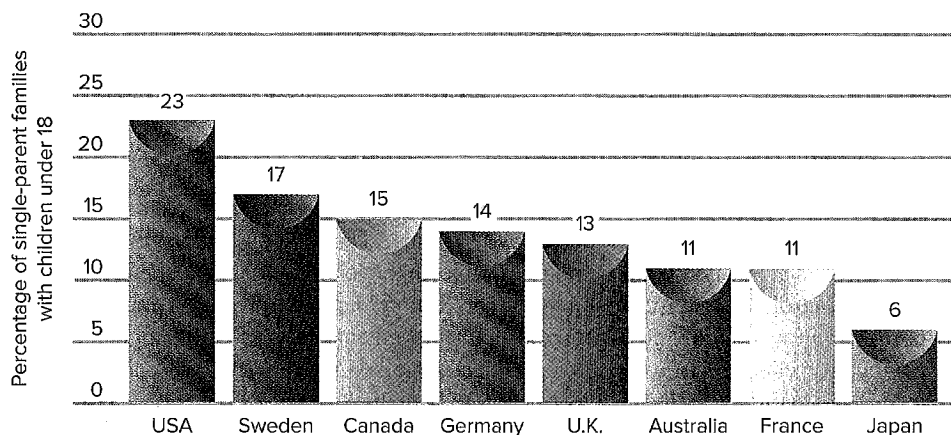


Figure 4 Single-Parent Families in Different Countries

Ann Crouter (2006) described how parents bring their experiences at work into their homes. She concluded that parents who experience poor working conditions, such as long hours, overtime work, stressful working conditions, and lack of autonomy at work, are likely to be more irritable at home and engage in less effective parenting than their counterparts who experience better working conditions. A consistent finding is that children (especially girls) whose mothers are employed engage in less gender stereotyping and have more egalitarian views of gender than do children whose mothers do not work outside the home (Goldberg & Lucas-Thompson, 2008).

Children in Divorced Families

Divorce rates changed rather dramatically in the United States and many countries around the world in the late twentieth century (Braver & Lamb, 2013). The U.S. divorce rate increased dramatically in the 1960s and 1970s but has declined since the 1980s. However, the divorce rate in the United States is still much higher than in most other countries.

It is estimated that 40 percent of children born to married parents in the United States will experience their parents' divorce (Hetherington & Stanley-Hagan, 2002). Let's examine some important questions about children in divorced families:

- *Are children better adjusted in intact, never-divorced families than in divorced families?* Most researchers agree that children from divorced families show poorer adjustment than their counterparts in never-divorced families (Amato & Anthony, 2014; Arkes, 2015; Hetherington, 2006; Weaver & Schofield, 2015) (see Figure 5). Those who have experienced multiple divorces are at greater risk. Children in divorced families are more likely than those in never-divorced families to have academic problems, to exhibit externalized problems (such as acting out and delinquency) and experience internalized problems (such as anxiety and depression), to be less socially responsible, to have less competent intimate relationships, to drop out of school, to become sexually active at an earlier age, to take drugs, to associate with antisocial peers, to have low self-esteem, and to be less securely attached as young adults (Lansford, 2012, 2013). In a recent study, individuals who had experienced their parents' divorce were more at risk for engaging in a lifetime suicide attempt (Alonzo & others, 2014).
- *Should parents stay together for the sake of the children?* Whether parents should stay in an unhappy or conflicted marriage for the sake of their children is one of the most commonly asked questions about divorce (Hetherington, 2006). If the stresses and disruptions in family relationships associated with an unhappy marriage that erode the well-being of children are reduced by the move to a divorced, single-parent family, divorce can be advantageous. However, if the diminished resources and increased risks associated with divorce are accompanied by inept parenting and sustained or increased conflict, not only between the divorced couple but also among the parents, children, and siblings, the best choice for the children would be for an unhappy marriage to be continued (Hetherington & Stanley-Hagan, 2002). It is difficult to determine how these "ifs" will play out when parents either remain together in an acrimonious marriage or become divorced.

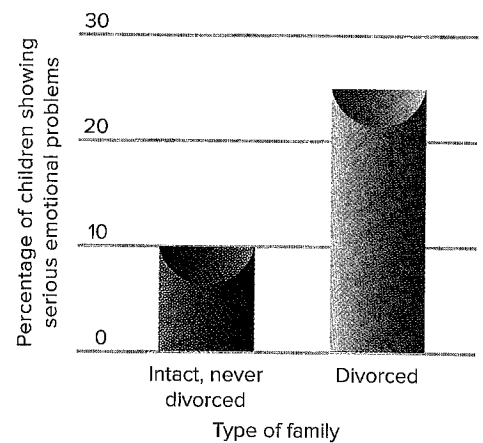


Figure 5 Divorce and Children's Emotional Problems

In Hetherington's research, 25 percent of children from divorced families showed serious emotional problems, compared with only 10 percent of children from intact, never-divorced families. However, keep in mind that a substantial majority (75 percent) of the children from divorced families did not show serious emotional problems.



What concerns are involved in whether parents should stay together for the sake of the children or become divorced?

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- Many of the problems experienced by children of divorced parents begin during the predivorce period, a time when parents often are in active conflict. Thus, when children of divorced parents show problems, the problems may be due not only to the divorce itself but also to the marital conflict that led to it (Davies, Martin & Sturge-Apple, 2016; El-Sheikh & others, 2013; Jouriles, McDonald, & Kouros, 2016). E. Mark Cummings and his colleagues (Cummings & Miller, 2015; Cummings & Valentino, 2015; Koss & others, 2014; McCoy & others, 2013) have proposed emotion security theory, which has its roots in attachment theory and states that children appraise marital conflict in terms of their sense of security and safety in the family. These researchers make a distinction between marital conflict that is negative for children (such as hostile emotional displays and destructive conflict tactics) and marital conflict that can be positive for children (such as marital disagreement that involves calmly discussing each person's perspective and then working together to find a solution). In a recent study, maladaptive marital conflict (destructive strategies, severity of arguments) when children were 2 years old was associated with an increase in internalizing problems eight years later due to an undermining of attachment security for girls, while negative emotional aftermath of conflict (unresolved, lingering tension) increased both boys' and girls' internalizing problems (Brock & Kochanska, 2016).
- *How much do family processes matter after a divorce?* They matter a great deal (Demby, 2016; Elam & others, 2016; Lansford, 2012, 2013; Luecken & others, 2016; Warshak, 2014). When divorced parents' relationship with each other is harmonious and when they use authoritative parenting, children's adjustment improves (Hetherington, 2006). A number of researchers have shown that a disequilibrium, which includes diminished parenting skills, occurs in the year following the divorce—but by two years after the divorce, restabilization has occurred and parenting skills have improved (Hetherington, 1989). When the divorced parents can agree on childrearing strategies and can maintain a cordial relationship with each other, frequent visits by the noncustodial parent usually benefit the child (Fabricius & others, 2010). Following a divorce, father involvement with children drops off more than mother involvement, especially for fathers of girls. Also, a recent study in divorced families revealed that an intervention focused on improving the mother-child relationship was linked to improvements in relationship quality that increased children's coping skills over the short term (six months) and long term (six years) (Velez & others, 2011). And a longitudinal study revealed that parental divorce experienced before age 7 was linked to a lower level of the children's health through 50 years of age (Thomas & Hognas, 2015). Further, a recent study of non-residential fathers in divorced families indicated that high father-child involvement and low interparental conflict were linked to positive child outcomes (Flam & others, 2016). Also, a recent research review concluded that co-parenting (co-parental support, cooperation, and agreement) following divorce was related to positive child outcomes such as lower anxiety and depression, as well as higher self-esteem and academic performance (Lamela & Figueiredo, 2016).
- *What factors influence an individual child's vulnerability to suffering negative consequences as a result of divorce?* Among the factors involved are the parent's and child's adjustment prior to the divorce, as well as the child's personality and temperament, gender, and custody situation (Hetherington, 2006). In a recent study, a higher level of predivorce maternal sensitivity and child IQ served as protective factors in reducing children's problems after the divorce (Weaver & Schofield, 2015). Children whose parents later divorce show poorer adjustment before the breakup (Lansford, 2012, 2013). Children who are socially mature and responsible, who show few behavioral problems, and who have an easy temperament are better able to cope with their parents' divorce. Children with a difficult temperament often have problems coping with their parents' divorce (Hetherington, 2006). Joint custody works best for children when the parents can get along with each other (Clarke-Stewart & Parke, 2014).
- *What role does socioeconomic status play in the lives of children whose parents have divorced?* Mothers who have custody of their children experience the loss of

about one-fourth to one-half of their predivorce income, compared with a loss of only one-tenth by fathers who have custody. This income loss for divorced mothers is accompanied by increased workloads, high rates of job instability, and residential moves to less desirable neighborhoods with inferior schools (Lansford, 2009).

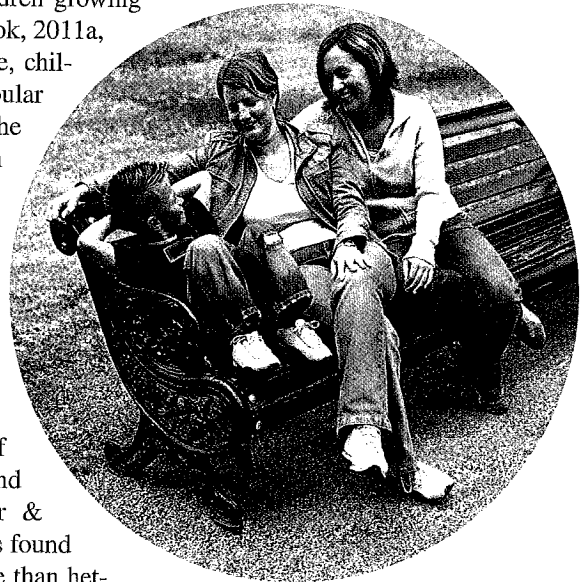
Gay and Lesbian Parents

Increasingly, gay and lesbian couples are creating families that include children (Patterson, 2013, 2014; Patterson & Farr, 2014; Patterson, Farr, & Hastings, 2015). Approximately 20 percent of lesbians and 10 percent of gay men are parents. There may be more than 1 million gay and lesbian parents in the United States today.

Like heterosexual couples, gay and lesbian parents vary greatly. They may be single, or they may have same-gender partners. Many lesbian mothers and gay fathers are noncustodial parents because they lost custody of their children to heterosexual spouses after a divorce.

Parenthood among lesbians and gay men is controversial. Opponents claim that being raised by gay or lesbian parents harms the child's development. But researchers have found few differences between children growing up with lesbian mothers or gay fathers on the one hand, and children growing up with heterosexual parents on the other (Golombok, 2011a, b; Patterson, Farr, & Hastings, 2015). For example, children raised by gay or lesbian parents are just as popular with their peers, and no differences are found in the adjustment and mental health of children living in these families in comparison with children raised by heterosexual parents (Patterson, 2013, 2014). Contrary to the once-popular expectation that being raised by a gay or lesbian parent would result in the child's growing up to be gay or lesbian, in reality the overwhelming majority of children from gay or lesbian families have a heterosexual orientation (Golombok, 2011a, b).

Also, a recent study compared the incidence of coparenting in adoptive heterosexual, lesbian, and gay couples with preschool-aged children (Farr & Patterson, 2013). Both self-reports and observations found that lesbian and gay couples shared child care more than heterosexual couples did, with lesbian couples being the most supportive and gay couples the least supportive. Further, a recent study revealed more positive parenting in adoptive gay father families and fewer child externalizing problems in these families than in heterosexual families (Golombok & others, 2014).



What are the research findings regarding the development and psychological well-being of children raised by gay and lesbian couples?

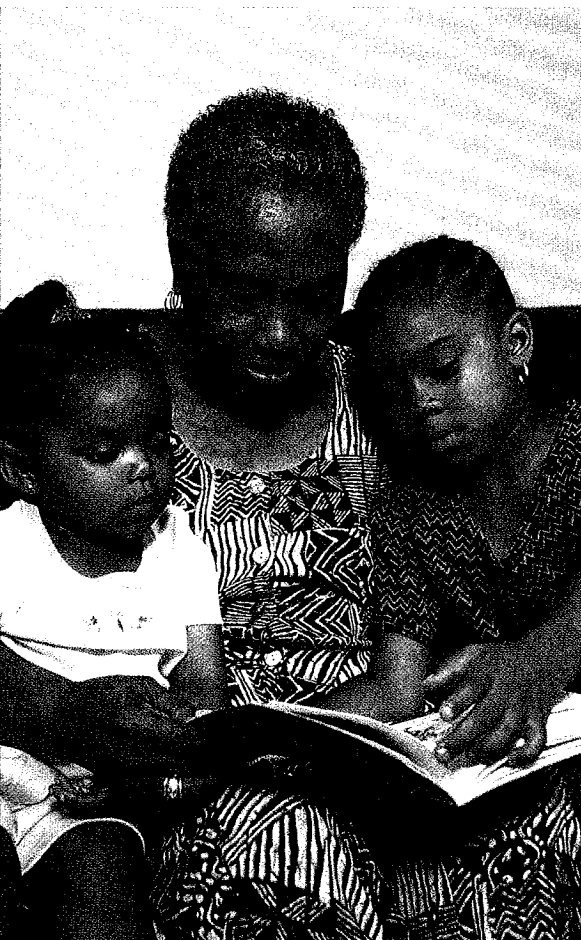
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Cultural, Ethnic, and Socioeconomic Variations

Parenting can be influenced by culture, ethnicity, and socioeconomic status. Recall from Bronfenbrenner's ecological theory that a number of social contexts influence the child's development. In Bronfenbrenner's theory, culture, ethnicity, and socioeconomic status are classified as part of the macrosystem because they represent broader societal contexts.

Cross-Cultural Studies Different cultures often give different answers to such basic questions as what the father's role in the family should be, what support systems are available to families, and how children should be disciplined (Chen, Fu, & Zhao, 2015; Gaskins, 2016). There are important cross-cultural variations in parenting (Cole & Tan, 2015; Mistry & Dutta, 2015). In some cultures, such as rural areas of many countries, authoritarian parenting is widespread.

Cultural change, brought about by factors such as increasingly frequent international travel, the Internet and electronic communications, and economic globalization, is affecting families in many countries around the world. There are trends toward greater family



What are some characteristics of families within different ethnic groups?

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mobility, migration to urban areas, and separation as some family members work in cities or countries far from their homes. Other trends include smaller families, fewer extended-family households, and increases in maternal employment (Brown & Larson, 2002). These trends can change the nature of the resources available to children. For example, when several generations no longer live in close proximity, children may lose the support and guidance of grandparents, aunts, and uncles. On the positive side, smaller families may produce more openness and communication between parents and children.

Ethnicity Families within various ethnic groups in the United States differ in their typical size, structure, composition, reliance on kinship networks, and levels of income and education (Gonzales & others, 2016). Large and extended families are more common among minority groups than among the non-Latino White majority. For example, 19 percent of Latino families have three or more children, compared with 14 percent of African American and 10 percent of White families. African American and Latino children interact more with grandparents, aunts, uncles, cousins, and more distant relatives than do non-Latino White children.

Single-parent families are more common among African Americans and Latinos than among non-Latino White Americans. In comparison with two-parent households, single parents often have more limited resources in terms of time, money, and energy (Evans, Li, & Sepanski Whipple, 2013). Ethnic minority parents also

tend to be less educated and are more likely to live in low-income circumstances than their non-Latino White counterparts. Still, many impoverished ethnic minority families manage to find ways to raise competent children.

Of course, individual families vary, and how ethnic minority families deal with stress depends on many factors (Yoshikawa & others, 2016). Whether the parents are native-born or immigrants, how long the family has been in this country, its socioeconomic status, and its national origin all make a difference (Berry, 2015; Renzetti & Kennedy-Bergen, 2015). The characteristics of the family's social context also influence its adaptation. What are the attitudes toward the family's ethnic group within its neighborhood or city? Can the family's children attend good schools? Are there community groups that welcome people from the family's ethnic group? Do members of the family's ethnic group form community groups of their own?

A major change in families in the last several decades has been the dramatic increase in the immigration of Latino and Asian families into the United States (Parra-Cardona & others, 2016; Tang, 2015). Immigrant families often experience stressors uncommon to or less prominent among longtime residents, such as language barriers, dislocations and separations from support networks, the dual struggle to preserve identity and to acculturate, and changes in SES status (Gonzales & others, 2016; Suarez-Orozco & Suarez-Orozco, 2015/2016).



What are some of the stressors that immigrant families experience when they come to the United States?

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Many members of families that have recently immigrated to the United States adopt a bicultural orientation, selecting characteristics of the U.S. culture that help them to survive and advance, while still retaining aspects of their culture of origin. In adopting characteristics of the U.S. culture, Latino families are increasingly embracing the importance of education. Although their school dropout rates have remained higher than the rates for other ethnic groups, toward the end of the first decade of the twenty-first century they declined considerably (National Center for Education Statistics, 2015). Also, a recent study of Asian American adolescents found that a bicultural orientation of both adolescents and their parents was associated with higher academic achievement (Kim & others, 2015).

However, while many ethnic/immigrant families adopt a bicultural orientation, parenting in many ethnic minority families also focuses on issues associated with promoting children's ethnic pride, knowledge of their ethnic group, and awareness of discrimination (McLoyd, Purtell, & Hardaway, 2015; Updegraff & Umana-Taylor, 2015).

Socioeconomic Status Low-income families have less access to resources than do higher-income families (Gonzales & others, 2016; McBride Murry & others, 2015). The resources in question include nutrition, health care, protection from danger, and enriching educational and socialization opportunities, such as tutoring and lessons in various activities (Leventhal, Dupere, & Shuey, 2015). These differences are compounded in low-income families characterized by long-term poverty (Wadsworth & others, 2016). In one study, poverty-related adversity in family and school contexts in early childhood were linked to less effective executive function in second- and third-graders (Raver & others, 2013).

In the United States and most Western cultures, researchers have identified differences in child-rearing practices among groups of varying socioeconomic status (SES) (Hoff, Laursen, & Tardif, 2002, p. 246):

- “Lower-SES parents (1) are more concerned that their children conform to society's expectations, (2) create a home atmosphere in which it is clear that parents have authority over children,” (3) are more likely to use physical punishment in disciplining their children, and (4) are more directive and less conversational with their children.
- “Higher-SES parents (1) are more concerned with developing children's initiative” and their capacity to delay gratification, (2) “create a home atmosphere in which children are more nearly equal participants and in which rules are discussed as opposed to being laid down” in an authoritarian manner, (3) are less likely to use physical punishment, and (4) “are less directive and more conversational” with their children.

Peer Relations, Play, and Media/ Screen Time

The family is an important social context for children's development. However, children's development also is strongly influenced by what goes on in other social contexts, such as in peer groups and when children are playing or using various media.

Peer Relations

As children grow older, they spend an increasing amount of time with their peers—children of about the same age or maturity level.

What are the functions of a child's peer group? One of its most important functions is to provide a source of information and comparison about the world outside the family. Children receive feedback about their abilities from their peer group. They evaluate what they can do in terms of whether it is better than, as good as, or worse than what other children can do. It is hard to make these judgments at home because siblings are usually older or younger.



What are some characteristics of young children's peer relations?

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Good peer relations promote normal socioemotional development (Prinstein & Giletta, 2016; Schneider, 2016). Special concerns in peer relations focus on children who are withdrawn or aggressive (Rubin, Bukowski, & Bowker, 2015; Rubin & others, 2016). Withdrawn children who are rejected by peers or are victimized and feel lonely are at risk for depression. Children who are aggressive with their peers are at risk for developing a number of problems, including delinquency and dropping out of school (Chen, Drabick, & Burgers, 2015).

Good peer relations can be necessary for normal socioemotional development. Recall from our discussion of gender that by about age 3, children already prefer to spend time with same-sex rather than opposite-sex playmates, and this preference increases in early childhood. During these same years, the frequency of peer interactions, both positive and negative, picks up considerably (Cillessen & Bellmore, 2011). Although aggressive interactions and rough-and-tumble play increase, the proportion of aggressive exchanges, compared with friendly exchanges, decreases. Many preschool children spend considerable time in peer interaction just conversing with playmates about such matters as “negotiating roles and rules in play, arguing, and agreeing” (Rubin, Bukowski, & Parker, 2006).

Parents may influence their children's peer relations in many ways, both direct and indirect (Caruthers, Van Ryzin, & Dishion, 2014; Tilton-Weaver & others, 2013). Parents affect their children's peer relations through their interactions with their children, how they manage their children's lives, and the opportunities they provide to their children (Brown & Bakken, 2011). For example, when mothers coached their preschool daughters about the negative aspects of peer conflicts involving relational aggression (harming someone by manipulating relationships), the daughters engaged in lower rates of relational aggression (Werner & others, 2014).

Play

An extensive amount of peer interaction during childhood involves play, but social play is only one type of play. Play is a pleasurable activity that is engaged in for its own sake, and its functions and forms vary.

Functions of Play

Play is an important aspect of children's development (Bergen, 2015; Clark, 2016; Johnson & others, 2015; Lillard, 2015). Theorists have focused on different aspects of play and highlighted a long list of functions (Henricks, 2015a, b).

According to Freud and Erikson, play helps the child master anxieties and conflicts (Demanchick, 2015). Because pent-up tensions are released through play, the child can cope better with life's problems. Therapists use *play therapy* both to allow the child to work off frustrations and to analyze the child's conflicts and ways of coping with them (Clark, 2015, 2016). Children may feel less threatened and be more likely to express their true feelings in the context of play.

Play is also an important context for cognitive development. Both Piaget and Vygotsky concluded that play is the child's work. Piaget (1962) maintained that play advances children's cognitive development. At the same time, he said that children's cognitive development constrains the way they play. Play permits children to practice their competencies and acquired skills in a relaxed, pleasurable way. Piaget thought that cognitive structures need to be exercised, and play provides the perfect setting for this exercise (DeLisi, 2015).

Vygotsky (1962) also considered play to be an excellent setting for cognitive development. He was especially interested in the symbolic and make-believe aspects of play,

sensorimotor play Behavior engaged in by infants to derive pleasure from exercising their existing sensorimotor schemes.

practice play Play that involves repetition of behavior when new skills are being learned or when physical or mental mastery and coordination of skills are required for games or sports.

pretense/symbolic play Play in which the child transforms the physical environment into a symbol.

as when a child substitutes a stick for a horse and rides the stick as if it were a horse. For young children, the imaginary situation is real (Bodrova & Leong, 2015). Parents should encourage such imaginary play because it advances the child's cognitive development, especially creative thought.

Daniel Berlyne (1960) described play as exciting and pleasurable in itself because it satisfies our exploratory drive. This drive involves curiosity and a quest for information about something new or unusual. Play encourages exploratory behavior by offering children the possibilities of novelty, complexity, uncertainty, surprise, and incongruity.

More recently, play has been described as an important context for the development of language and communication skills (Christie & Roskos, 2015; Hirsh-Pasek & Golinkoff, 2014; Zosh, Hirsh-Pasek, & Golinkoff, 2015). Language and communication skills may be enhanced

through discussions and negotiations regarding roles and rules in play as young children practice various words and phrases. These types of social interactions during play can benefit young children's literacy skills (Kostelnik & others, 2015). And play is a central focus of the child-centered kindergarten and is thought to be an essential aspect of early childhood education (Feeney, Moravcik, & Nolte, 2016).

Types of Play

The contemporary perspective on play emphasizes both the cognitive and the social aspects of it (Lillard, 2015). Among the most widely studied types of children's play are sensorimotor and practice play, pretense/symbolic play, social play, constructive play, and games (Bergen, 1988).

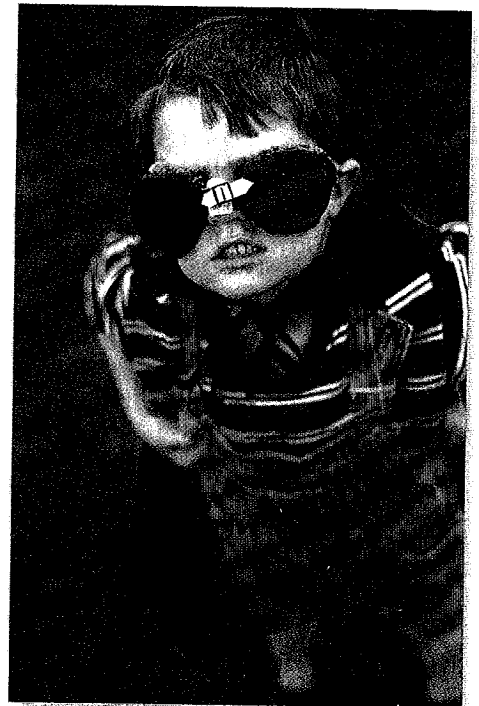
Sensorimotor and Practice Play **Sensorimotor play** is behavior that allows infants to derive pleasure from exercising their sensorimotor schemes. The development of sensorimotor play follows Piaget's description of sensorimotor thought. Infants begin to engage in exploratory and playful visual and motor transactions during the second quarter of the first year of life. By the age of 9 months, many infants can select novel objects for exploration and play, especially responsive objects such as toys that make noise or bounce.

Practice play involves the repetition of behavior when new skills are being learned or when physical or mental mastery and coordination of skills are required for games or sports. Sensorimotor play, which often involves practice play, is primarily confined to infancy, whereas practice play can continue to occur throughout life. During the preschool years, children often engage in practice play.

Pretense/Symbolic Play **Pretense/symbolic play** occurs when the child transforms the physical environment into a symbol. Between 9 and 30 months, children increasingly use objects in symbolic play. They learn to transform objects—substituting them for other objects and acting toward them as if they were these other objects. For example, a preschool child may treat a table as if it were a car and say, "I'm fixing the car" as he grabs a leg of the table.

Many experts on play consider the preschool years the "golden age" of pretense/symbolic play that is dramatic or sociodramatic in nature. This type of make-believe play often appears at about 18 months and reaches a peak at ages 4 to 5, then gradually declines.

Some child psychologists believe that pretend play is an important aspect of young children's development and often reflects advances in their cognitive development, especially as an indication of symbolic understanding. For example, Catherine Garvey (2000) and Angeline Lillard



A preschool "superhero" at play.

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(2006, 2015) emphasize that hidden in young children's pretend-play narratives are remarkable capacities for role-taking, balancing of social roles, metacognition (thinking about thinking), testing of the distinction between reality and pretense, and numerous nonegocentric capacities that reveal young children's remarkable cognitive skills.

Social Play Social play is play that involves interaction with peers. It increases dramatically during the preschool years. For many children, social play is the main context for their social interactions with peers. Social play includes varied interchanges such as turn taking, conversations about numerous topics, social games and routines, and physical play. It often provides a high degree of pleasure to the participants.

Constructive Play Constructive play combines sensorimotor/practice play with symbolic representation. It occurs when children engage in the self-regulated creation of a product or solution. Constructive play increases in the preschool years as symbolic play increases and sensorimotor play decreases. Constructive play is also a frequent form of play in the elementary school years, both in and out of the classroom.



How Would You...?

As an **educator**, how would you integrate play into the learning process?

Games Games are activities that are engaged in for pleasure and have rules. Often they involve competition. Preschool children may begin to participate in social games that involve simple rules of reciprocity and turn taking. However, games take on a much stronger role in the lives of elementary school children. In one study, the highest

incidence of game playing occurred between ages 10 and 12 (Eiferman, 1971). After age 12, games decline in popularity (Bergen, 1988).

Trends in Play

Kathy Hirsh-Pasek, Roberta Golinkoff, and Dorothy Singer (Hirsh-Pasek & others, 2009; Singer, Golinkoff, & Hirsh-Pasek, 2006) are concerned about the decline in the amount of free play time that young children have, reporting that it has declined considerably in recent decades. They especially are worried about young children's play time being restricted at home and school so they can spend more time on academic subjects. They also point out that many schools have eliminated recess. And it is not just the decline in free play time that bothers them. They underscore that learning in playful contexts captivates children's minds in ways that enhance their cognitive and socioemotional development—Singer, Golinkoff, and Hirsh-Pasek's (2006) first book on play was titled *Play = Learning*. Among the cognitive benefits of play they described are these skills: creative; abstract thinking; imagination; attention, concentration, and persistence; problem-solving; social cognition, empathy, and perspective taking; language; and mastering new concepts. Among the socioemotional experiences and development they believe play promotes are enjoyment, relaxation, and self-expression; cooperation, sharing, and turn-taking; anxiety reduction; and self-confidence. With so many positive cognitive and socioemotional outcomes of play, clearly it is important that we find more time for play in young children's lives.



Kathy Hirsh-Pasek in a play setting with a young child. *What are some concerns of Hirsh-Pasek and her colleagues about trends in children's play?*

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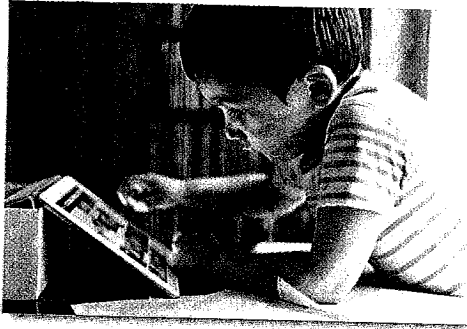
social play Play that involves social interactions with peers.

constructive play Play that combines sensorimotor and repetitive activity with symbolic representation of ideas. Constructive play occurs when children engage in self-regulated creation or construction of a product or a problem solution.

games Activities engaged in for pleasure that include rules and often involve competition between two or more individuals.

Media and Screen Time

Few developments in society in the second half of the twentieth century had a greater impact on children than television. Television continues to have a strong influence on children's development, but children's use of other



What are some concerns about young children's media and screen time?

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media and information/communication devices has led to the use of the term *screen time*, which includes how much time individuals spend watching/using television, DVDs, computers, playing video games, and using mobile media such as iPhones (Cote-Lussier, Mathieu, & Barnett, 2015; Goh & others, 2016; LeBlanc & others, 2015; Straker & Howie, 2016). Television is still the elephant in young children's media life, with 2- to 4-year-old children watching TV approximately 2 to 4 hours per day (Roberts & Foehr, 2008). However, one study revealed that 12 percent of 2- to 4-year-old U.S. children use computers every day and 22 percent of 5- to 8-year-olds use computers daily (Common Sense Media, 2011). A recent recommendation stated that for children 2 to 4 years of age screen time should be limited to no more than 1 hour per day (Tremblay & others, 2012). Nonetheless, many children spend more time with various screen media than they do interacting with their parents and peers.

Some types of TV shows are linked to positive outcomes for children. For example, a recent meta-analysis of studies in 14 countries found positive outcomes for watching the TV show *Sesame Street* in three areas: cognitive, learning about the world, and social reasoning and attitudes toward outgroups (Mares & Pan, 2013).

However, too much screen time can have a negative influence on children by making them passive learners, distracting them from doing homework, teaching them stereotypes, providing them with violent models of aggression, and presenting them with unrealistic views of the world (Busschaert & others, 2015; Calvert, 2015). Among other concerns about young children engaging in so much screen time are decreased time spent in play, less time interacting with peers, reduced physical activity, increased risk of being overweight or obese, poor sleep habits, and higher rates of aggression. Viewing as little as one hour of television daily was associated with an increase in body fat. And a recent research review concluded that higher levels of screen time (mostly involving TV viewing) were associated with lower levels of cognitive development in early childhood (Carson & others, 2015). Also, a recent study of preschool children found that each additional hour of screen time was linked to less nightly sleep, later bedtime, and reduced likelihood of sleeping 10 or more hours per night (Xu & others, 2016).

The extent to which children are exposed to violence and aggression on television raises special concerns (Calvert, 2015). For example, Saturday morning cartoon shows average more than 25 violent acts per hour. In a recent study of children, greater exposure to TV violence, video game violence, and music video violence was independently associated with a higher level of physical aggression (Coker & others, 2015).

Parents play an important role in children's media use. A recent study found that a higher degree of parental monitoring of children's media use was linked to a number of positive outcomes in children's lives (more sleep, better school performance, less aggressive behavior, and more prosocial behavior) (Gentile & others, 2014). And a recent study found that parental reduction in their own screen time was associated with decreased child screen time (Xu, Wen, & Rissel, 2014).

Children also benefit when parents are knowledgeable about the best digital applications (apps) for children. In a recent survey, 72 percent of the best apps for sale in Apple's App store were in the toddler/preschool category! Leading expert Kathy Hirsh-Pasek and her colleagues (2015) recently described criteria for the best types of educational apps parents can purchase for their young children:

- *Active involvement.* It is important that the app require thinking, reflection, and manipulation of information, requiring "minds on" activity rather than just physical tapping and swiping.
- *Engagement.* Children learn the content better when it requires focused attention and is embedded in an app-based story. However, if the app includes distracting side games and noise, children's learning is often harmed.

How Would You...?

As a **human development and family studies professional**, how would you talk with parents about strategies for improving television viewing by their children?



- *Meaningfulness.* Children's learning benefits when the app is meaningfully linked to past knowledge/experience or if it is personally relevant and purposeful for the children.
- *Social interaction.* Children's learning also is aided when the app encourages quality social interaction with others, as when the app motivates them to discuss its content with parents or teachers.

Summary

Emotional and Personality Development

- In Erikson's theory, early childhood is a period when development involves resolving the conflict of initiative versus guilt. Young children improve their self-understanding and understanding of others.
- Young children's range of emotions expands during early childhood as they increasingly experience self-conscious emotions such as pride, shame, and guilt. Children benefit from having emotion-coaching parents.
- Moral development involves thoughts, feelings, and actions regarding rules and regulations about what people should do in their interactions with others. Piaget proposed cognitive changes in children's moral reasoning. Behavioral and social cognitive theorists argue that there is considerable situational variability in moral behavior.
- Gender refers to the social and psychological dimensions of being male or female. Both psychoanalytic theory and social cognitive theory emphasize the adoption of parents' gender characteristics. Peers are especially adept at rewarding gender-appropriate behavior. Gender schema theory emphasizes the role of cognition in gender development.

Families

- Authoritarian, authoritative, neglectful, and indulgent parenting styles produce different results. Authoritative parenting is the style most often associated with children's social competence. Ethnic variations characterize parenting styles. Physical punishment is widely used by U.S. parents, but there are a number of reasons why it is not a good choice. Coparenting has positive effects on children's development.

- Child maltreatment may take the form of physical abuse, child neglect, sexual abuse, and emotional abuse.
- Siblings interact with each other in positive and negative ways. Birth order is related in certain ways to child characteristics, but by itself it is not a good predictor of behavior.
- In general, having both parents employed full-time outside the home has not been shown to have negative effects on children. If divorced parents develop a harmonious relationship and practice authoritative parenting, children's adjustment improves. Researchers have found few differences between children growing up in gay or lesbian families and children growing up in heterosexual families. Culture, ethnicity, and socioeconomic status are linked to a number of aspects of families and children's development.

Peer Relations, Play, and Media/Screen Time

- Peers are powerful socialization agents. Peers provide a source of information and comparison about the world outside the family.
- Play's functions include affiliation with peers, tension release, advances in cognitive development, exploration, and provision of a safe haven. The contemporary perspective on play emphasizes both the cognitive and the social aspects of play. Among the most widely studied types of children's play are sensorimotor play, practice play, pretense/symbolic play, social play, constructive play, and games.
- There are serious concerns about the extensive amount of time young children are spending with various media. Watching TV violence and playing violent video games have been linked to children's aggressive behavior.

Key Terms

authoritarian parenting
authoritative parenting
autonomous morality
constructive play
games
gender identity

gender roles
gender schema theory
heteronomous morality
immanent justice
indulgent parenting
moral development

neglectful parenting
practice play
pretense/symbolic play
psychoanalytic theory of
gender
self-understanding

sensorimotor play
social cognitive theory of
gender
social play
social role theory

7

Physical and Cognitive Development in Middle and Late Childhood



CHAPTER OUTLINE

PHYSICAL CHANGES AND HEALTH

Body Growth and Change
The Brain
Motor Development
Exercise
Health, Illness, and Disease

CHILDREN WITH DISABILITIES

The Scope of Disabilities
Educational Issues

COGNITIVE CHANGES

Piaget's Cognitive Developmental Theory
Information Processing
Intelligence

LANGUAGE DEVELOPMENT

Vocabulary, Grammar, and Metalinguistic Awareness
Reading
Second-Language Learning and Bilingualism

Stories of Life-Span Development: Angie and Her Weight

The following comments are by Angie, an elementary-school-age girl:

When I was eight years old, I weighed 125 pounds. My clothes were the size that large teenage girls wear. I hated my body, and my classmates teased me all the time. I was so overweight and out of shape that when I took a P.E. class my face would get red and I had trouble breathing. I was jealous of the kids who played sports and weren't overweight like I was.

I'm nine years old now and I've lost 30 pounds. I'm much happier and proud of myself. How did I lose the weight? My mom said she had finally decided enough was enough. She took me to a pediatrician who specializes in helping children lose weight and keep it off. The pediatrician counseled my mom about my eating and exercise habits, then had us join a group that he had created for overweight children and their parents. My mom and I go to the group once a week, and we've now been participating in the program for six months. I no longer eat fast-food meals, and my mom is cooking more healthy meals. Now that I've lost weight, exercise is not as hard for me, and I don't get teased by the kids at school. My mom's pretty happy, too, because she's lost 15 pounds herself since we've been in the counseling program.

Not all overweight children are as successful as Angie at reducing their weight. Indeed, being overweight in childhood has become a major national health concern in the United States. Later in the chapter, we further explore being overweight in childhood.

During the middle and late childhood years, which last from approximately 6 years of age to 10 or 11 years of age, children grow taller, heavier, and stronger, and become more adept

at using their physical skills. During these years, disabilities may emerge that call for special attention and intervention. It is also in this age period that children's cognitive abilities increase dramatically. Their command of grammar becomes proficient, they learn to read, and they may acquire a second language. ■

Physical Changes and Health

Continued growth and change in proportions characterize children's bodies during middle and late childhood. During this time period, some important changes in the brain also take place and motor skills improve. Developing a healthy lifestyle that involves regular exercise and good nutrition is a key aspect of making sure these years are a time of healthy growth and development.



What characterizes physical growth during middle and late childhood?

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Body Growth and Change

The period of middle and late childhood involves slow, consistent growth. This is a period of calm before the rapid growth spurt of adolescence. During the elementary school years, children grow an average of 2 to 3 inches a year until, at the age of 11, the average girl is 4 feet, 10¼ inches tall, and the average boy is 4 feet, 9 inches tall. During the middle and late childhood years, children gain about 5 to 7 pounds a year. The weight increase is due mainly to increases in the size of the skeletal and muscular systems, as well as the size of some body organs.

Proportional changes are among the most pronounced physical changes in middle and late childhood (Kliegman & others, 2016). Head and waist circumference decrease in relation to body height. A less noticeable physical change is that bones continue to ossify during middle and late childhood, although they still yield to pressure and pull more than do mature bones.

Muscle mass and strength gradually increase during these years as “baby fat” decreases. The loose movements and knock-knees of early childhood give way to improved muscle tone. Thanks both to heredity and to exercise, children double their strength capabilities during these years. Because of their greater number of muscle cells, boys are usually stronger than girls.

The Brain

Total brain volume stabilizes by the end of late childhood, but significant changes in various structures and regions of the brain continue to occur (de Haan & Johnson, 2016; Wendelken & others, 2016). As children develop, activation in some brain areas increases while it decreases in other areas (Denes, 2016; Deoni & others, 2015). One shift in activation that occurs is from diffuse, larger areas to more focal, smaller areas (Turkeltaub & others, 2003). This shift is characterized by synaptic pruning, in which areas of the brain not being used lose synaptic connections and those areas being used show an increase in connections. In one study, researchers found less diffusion and more focal activation in the prefrontal cortex from 7 to 30 years of age (Durstun & others, 2006). This shift in activation was accompanied by increased efficiency in cognitive performance, especially *cognitive control*, which involves effective control and flexibility in a number of areas (Markant & Thomas, 2013).

Leading researchers in developmental cognitive neuroscience have proposed that the prefrontal cortex likely orchestrates the functions of many other brain regions during development (de Haan & Johnson, 2016; Johnson, Grossmann, &

Cohen-Kadosh, 2009). As part of this organizational role, the prefrontal cortex may provide an advantage to neural networks and connections that include the prefrontal cortex. In this view, the prefrontal cortex coordinates which neural connections are the most effective for solving a problem at hand.

Motor Development

During middle and late childhood, children's motor skills become much smoother and more coordinated than they were in early childhood. For example, only one child in a thousand can hit a tennis ball over the net at the age of 3, yet by the age of 10 or 11 most children can learn to play the sport. Running, climbing, skipping rope, swimming, bicycle riding, and skating are just a few of the many physical skills elementary school children can master. In gross motor skills that involve large muscle activity, boys usually outperform girls.

Increased myelination of the central nervous system is reflected in the improvement of fine motor skills during middle and late childhood. Children can more adroitly use their hands as tools. Six-year-olds can hammer, paste, tie shoes, and fasten clothes. By 7 years of age, children's hands have become steadier. At this age, children prefer a pencil to a crayon for printing, and they reverse letters less often. Printing becomes smaller. At 8 to 10 years of age, they can use their hands independently with more ease and precision. Fine motor coordination develops to the point at which children can write rather than print words. Cursive letter size becomes smaller and more even. At 10 to 12 years of age, children begin to show manipulative skills similar to the abilities of adults. They can master the complex, intricate, and rapid movements needed to produce fine-quality crafts or to play a difficult piece on a musical instrument. Girls usually outperform boys in their use of fine motor skills.

Exercise

American children and adolescents are not getting enough exercise. Increasing children's exercise levels has positive outcomes (Nemet, 2016; Wuest & Fisette, 2015).

An increasing number of studies document the importance of exercise in children's physical development (Innella & others, 2016; Pan & others, 2016; Pate & others, 2015). One recent research review concluded that exercise programs with a frequency of three weekly sessions lasting longer than 60 minutes was effective in lowering both systolic and diastolic blood pressure (Garcia-Hermoso, Saavedra, & Escalante, 2013).

Researchers also have found that aerobic exercise benefits children's attention, memory, effortful and goal-directed thinking and behavior, creativity, and academic success (Pan & others, 2016; Tomporowski, 2016). For example, in a recent fMRI study of physically unfit 8- to 11-year-old overweight children, a daily instructor-led aerobic exercise program that lasted eight months was effective in improving the efficiency or flexible modulation of neural circuits that support better cognitive functioning (Kraftt & others, 2014). Further, a recent study found that moderately intensive aerobic exercise improved children's cognitive inhibitory control (Drolette & others, 2014).

Parents and schools play important roles in determining children's exercise levels (Aires & others, 2016; Kesten & others, 2016). Growing up with parents who exercise regularly provides positive models of exercise for children (Crawford & others, 2010). In one study, a school-based physical activity was successful in improving children's fitness and lowering their fat content (Kriemler & others, 2010).

Screen time also is linked with low activity levels, obesity, and worse sleep patterns in children (LeBlanc & others, 2015; Shang & others, 2015; Xu & others, 2016). Researchers have found that the total time that children and adolescents spend in front of a television or computer screen places them at risk for reduced activity and being overweight (Taverno Ross & others, 2013).

How Would You...?

As an **educator**, how would you structure the curriculum to ensure that elementary school students are getting adequate physical activity throughout the day?



Health, Illness, and Disease

For the most part, middle and late childhood is a time of excellent health. Disease and death are less prevalent at this time than during other periods in childhood and in adolescence. However, many children in middle and late childhood face health problems that threaten their development (Wardlaw & Smith, 2015).

Overweight Children

Being overweight is an increasingly prevalent health problem in children (Schiff, 2015, 2016; Sorte, Daeschel, & Amador, 2017). Over the last three decades, the overall percentage of U.S. children who are at risk for being overweight has increased dramatically (Orsi, Hale, & Lynch, 2011). Recently, however, the percentage of 2- to 5-year-old children who are obese has decreased from 12.1 percent in 2009–2010 to 8 percent in 2011–2012 (Ogden & others, 2014). In 2011–2012, 17.5 percent of 6- to 11-year-old U.S. children were classified as obese, which is essentially unchanged from 2009–2010 (Ogden & others, 2014).

It is not just in the United States that more children are becoming overweight (Fernandez & others, 2015). For example, a study found that general and abdominal obesity in Chinese children increased significantly from 1993 to 2009 (Liang & others, 2012). Further, a recent Chinese study revealed that high blood pressure in 23 percent of boys and 15 percent of girls could be attributed to being overweight or obese (Dong & others, 2015).

Causes of Children Being Overweight

Heredity and environmental contexts are related to being overweight in childhood. Recent genetic analysis indicates that heredity is an important factor in children becoming over-

weight (Llewellyn & others, 2014; Wang & others, 2016). Overweight parents tend to have overweight children (Pufal & others, 2012). Environmental factors that influence whether children become overweight include availability of food (especially food high in fat content), energy-saving devices, declining physical activity, parents' eating habits and monitoring of children's eating habits, the context in which a child eats, and heavy screen time (Nguyen & others, 2016; Parkes & others, 2016). In a 14-year longitudinal study, parental weight change predicted children's weight change (Andriani, Liao, & Kuo, 2015). Another study found that having two overweight/obese parents significantly increased the likelihood that children would be overweight/obese (Xu & others, 2011). Screen time also is linked with low activity levels and obesity in children (Taverno Ross & others, 2013). A recent research study found that a higher level of screen time increased the risk of obesity for low- and high-activity children (Lane, Harrison, & Murphy, 2014). Also, a recent study of more than 6,000 elementary school children revealed that 55 minutes or more of moderate-to-vigorous physical activity daily was associated with a lower incidence of obesity (Nemet, 2016).

Consequences of Children Being Overweight The increasing number of overweight children in recent decades is cause for great concern because being overweight raises the risk for many medical and psychological problems (de Koning & others, 2015; Sahoo & others, 2015; Sorte, Daeschel, & Amador, 2017). Diabetes, hypertension (high blood pressure), and elevated blood cholesterol levels are common in children who are overweight (Propst & others, 2015; So & others, 2016). In a recent study, a larger waist circumference and a higher body mass index (BMI) combined to place children at higher risk for cardiovascular disease (de Koning & others, 2015). Also, a research review



What are some concerns about overweight children?

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How Would You...?

As a **social worker**, how would you use your knowledge of overweight risk factors to design a workshop for parents and children about healthy lifestyle choices?



concluded that obesity was linked with low self-esteem in children (Gomes & others, 2011). And in one study, overweight children reported being teased more by their peers and family members than did normal-weight children (McCormack & others, 2011).

Intervention Programs A combination of diet, exercise, and behavior modification is often recommended to help children lose weight (Street, Wells, & Hills, 2015). Intervention programs that emphasize getting parents to engage in healthier lifestyles themselves, as well as feeding their children healthier food and getting them to exercise more, can produce weight reduction in overweight and obese children (Ling, Robbins, & Wen, 2016; Lumpkin, 2014).

Cancer

Cancer is the second leading cause of death in U.S. children 5 to 14 years of age. One in every 330 children in the United States develops cancer before the age of 19. The incidence of cancer in children has increased slightly in recent years (National Cancer Institute, 2016).

Childhood cancers mainly attack the white blood cells (leukemia), brain, bone, lymph system, muscles, kidneys, and nervous system. All are characterized by an uncontrolled proliferation of abnormal cells (Bleeker & others, 2014). As indicated in Figure 1, the most common cancer in children is leukemia, a cancer in which bone marrow manufactures an abundance of abnormal white blood cells that crowd out normal cells, making the child susceptible to bruising and infection (Tomizawa, 2015).

Because of advancements in cancer treatment, children with cancer are surviving longer than in the past (National Cancer Institute, 2016). For example, approximately 80 percent of children with acute lymphoblastic leukemia are cured with chemotherapy (Wayne, 2011).

Child life specialists are among the health professionals who strive to reduce stress in children with diseases. To read about the work of child life specialist Sharon McLeod, see *Careers in Life-Span Development*.

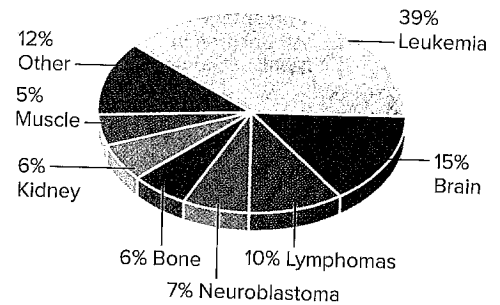


Figure 1 Types of Cancer in Children

Cancers in children have a different profile from adult cancers, which attack mainly the lungs, colon, breast, prostate, and pancreas.

Careers in life-span development

Sharon McLeod, Child Life Specialist

Sharon McLeod is a child life specialist who is clinical director of the Child Life and Recreational Therapy Department at the Children's Hospital Medical Center in Cincinnati. Under McLeod's direction, the goals of the Child Life Department are to promote children's optimal growth and development, reduce the stress of health-care experiences, and provide support to child patients and their families. These goals are accomplished through therapeutic play and developmentally appropriate activities, educating and psychologically preparing children for medical procedures, and serving as a resource for parents and other professionals regarding children's development and health-care issues.

McLeod says that human growth and development provides the foundation for her profession as a child life specialist. She also describes her best times as a student as those when she conducted fieldwork, had an internship, and experienced hands-on applications of theories and concepts she learned in her courses.



Sharon McLeod, child life specialist, works with a child at Children's Hospital Medical Center in Cincinnati.

© Sharon McLeod

Disability	Percentage of All Children in Public Schools
Learning disabilities	4.7
Speech or hearing impairments	2.8
Intellectual disability	0.9
Autism	0.9
Emotional disturbance	0.8

Figure 2 U.S. Children with a Disability Who Receive Special Education Services

Figures are for the 2011–2012 school year and represent the four categories with the highest numbers and percentages of children. Both learning disability and attention deficit hyperactivity disorder are combined in the learning disabilities category (Condition of Education, 2015).

Children with Disabilities

The elementary school years are a time when disabilities become prominent for some children. What are some of the disabilities that children have? What characterizes the educational issues facing children with disabilities?

The Scope of Disabilities

Of all children in the United States, 13 percent from 3 to 21 years of age received special education or related services in 2011–2012, an increase of 3 percent since 1980–1981 (Condition of Education, 2015). Figure 2 shows the four largest groups of students with a disability who were served by federal programs during the 2011–2012 school year (Condition of Education, 2015).

As indicated in Figure 2, students with a learning disability were by far the largest group of students with a disability to be given special education, followed by children with speech or language impairments, intellectual disabilities, and emotional disturbance. Note that the U.S. Department of Education includes both students with a learning disability and students with ADHD in the category of learning disability.

Learning Disabilities

The U.S. government uses the following definition to determine whether a child should be classified as having a learning disability: A child with a **learning disability** has difficulty in learning that involves understanding or using spoken or written language, and the difficulty can appear in listening, thinking, reading, writing, and spelling. A learning disability also may involve difficulty in doing mathematics (Kucian & von Aster, 2015). To be classified as a learning disability, the learning problem is not primarily the result of visual,

hearing, or motor disabilities; intellectual disability; emotional disorders; or environmental, cultural, or economic disadvantage.

About three times as many boys as girls are classified as having a learning disability. Among the explanations for this gender difference are a greater biological vulnerability among boys and *referral bias*. That is, boys are more likely than girls to be referred by teachers for treatment because of troublesome behavior.

Approximately 80 percent of children with a learning disability have a reading problem (Shaywitz, Gruen, & Shaywitz, 2007). Three types of learning disabilities are dyslexia, dysgraphia, and dyscalculia:

- *Dyslexia* is a category reserved for individuals who have a severe impairment in their ability to read and spell (Thompson & others, 2015).
- *Dysgraphia* is a learning disability that involves difficulty in handwriting (Berninger & others, 2015). Children with dysgraphia may write very slowly, their writing products may be virtually illegible, and they may make numerous spelling errors because of their inability to match up sounds and letters.
- *Dyscalculia*, also known as developmental arithmetic disorder, is a learning disability that involves difficulty in math computation (Kucian & von Aster, 2015).

The precise causes of learning disabilities have not yet been determined (Vaughn & Bos, 2015). To reveal any regions of the brain that

How Would You...?

As an **educator**, how would you explain the nature of learning disabilities to a parent whose child has recently been diagnosed with a learning disability?



learning disability Describes a child who has difficulty understanding or using spoken or written language or doing mathematics. To be classified as a learning disability, the problem is not primarily the result of visual, hearing, or motor disabilities; intellectual disability; emotional disorders; or due to environmental, cultural, or economic disadvantage.

attention deficit hyperactivity disorder (ADHD) A disability in which children consistently show one or more of the following characteristics: (1) inattention, (2) hyperactivity, and (3) impulsivity.

might be involved in learning disabilities, researchers use brain-imaging techniques such as magnetic resonance imaging (Shaywitz, Lyon, & Shaywitz, 2006) (see Figure 3). This research indicates that it is unlikely learning disabilities reside in a single, specific brain location. More likely, learning disabilities are due to problems in integrating information from multiple brain regions or subtle difficulties in brain structures and functions.

Interventions with children who have a learning disability often focus on improving reading ability (Bursuck & Damer, 2015). Intensive instruction over a period of time by a competent teacher can help many children (Del Campo & others, 2015).

Attention Deficit Hyperactivity Disorder (ADHD)

Attention deficit hyperactivity disorder (ADHD) is a disability in which children consistently show one or more of these characteristics over a period of time: (1) inattention, (2) hyperactivity, and (3) impulsivity. Children who are inattentive have such difficulty focusing on any one thing that they may get bored with a task after only a few minutes—or even seconds. Children who are

hyperactive show high levels of physical activity, seeming to be almost constantly in motion. Children who are impulsive have difficulty curbing their reactions; they do not do a good job of thinking before they act. Depending on the characteristics that children with ADHD display, they can be diagnosed

as (1) ADHD with predominantly inattention, (2) ADHD with predominantly hyperactivity/impulsivity, or (3) ADHD with both inattention and hyperactivity/impulsivity.

The number of children diagnosed and treated for ADHD has increased substantially in

recent decades, by some estimates doubling in the 1990s. The American Psychiatric Association (2013) reported in the DSM-V Manual that 5 percent of children have ADHD, although estimates are higher in community samples. For example, the Centers for Disease Control and Prevention (2016) estimates that ADHD continues to increase in 4- to 17-year-old children, going from 8 percent in 2003 to 9.5 percent in 2007 and to 11 percent in 2016. According to the Centers for Disease Control and Prevention, 13.2 percent of U.S. boys and 5.6 of U.S. girls have ever been diagnosed with ADHD. The disorder is diagnosed four to nine times more often in boys than in girls.

There is controversy, however, about the reasons for the increased diagnosis of ADHD (Turnbull & others, 2016). Some experts attribute the increase mainly to heightened awareness of the disorder; others are concerned that many children might be incorrectly diagnosed (Watson & others, 2014).

Adjustment and optimal development are difficult for children who have ADHD, so it is important that the diagnosis be accurate. Children diagnosed with ADHD have an increased risk of school dropout, adolescent pregnancy, substance use problems, and antisocial behavior (Chang, Lichtenstein, & Larsson, 2012).

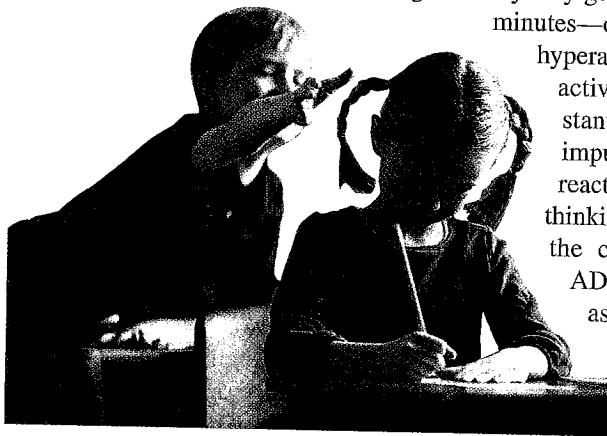
Definitive causes of ADHD have not been found. However, a number of causes have been proposed (Smith & others, 2016). Some children likely inherit a tendency to



Figure 3 Brain Scans and Learning Disabilities

An increasing number of studies are using MRI brain scans to examine the brain pathways involved in learning disabilities. Shown here is 9-year-old Patrick Price, who has dyslexia. Patrick is going through an MRI scanner disguised by drapes to look like a child-friendly castle. Inside the scanner, children must lie virtually motionless as words and symbols flash on a screen, and they are asked to identify them by clicking different buttons.

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Many children with ADHD show impulsive behavior, such as this boy reaching to pull a girl's hair. *How would you handle this situation if you were a teacher?*

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How Would You...?

As a **health-care professional**, how would you respond to this comment from a parent? "I do not believe that ADHD is a real disorder. Children are supposed to be active."



develop ADHD from their parents (Lee & Song, 2014). Other children likely develop ADHD because of damage to their brain during prenatal or postnatal development (Lindblad & Hjern, 2010). Among early possible contributors to ADHD are cigarette and alcohol exposure, as well as a high level of maternal stress during prenatal development and low birth weight (Glover, 2014; Obel & others, 2016; Yochum & others, 2014).

As with learning disabilities, the development of brain-imaging techniques is leading to a better understanding of ADHD (Berger & others, 2015; Chiang & others, 2015; Dougherty & others, 2016; Park & others, 2016). One study revealed that peak thickness of the cerebral cortex occurred three years later (10.5 years) in children with ADHD than in children without ADHD (peak at 7.5 years) (Shaw & others, 2007). The delay was more prominent in the prefrontal regions of the brain that are especially important in attention and planning (see Figure 4). Another study also found delayed development in the brain's frontal lobes among children with ADHD, which likely was due to delayed or decreased myelination (Nagel & others, 2011). Researchers also are exploring the roles that various neurotransmitters, such as serotonin and dopamine, might play in ADHD (Gold & others, 2014; Kollins & Adcock, 2014; Zhong, Liu, & Yan, 2016). A recent study found that the dopamine transporter gene DAT 1 was involved in decreased cortical thickness in the prefrontal cortex of children with ADHD (Fernandez-Jaen & others, 2015).

The delays in brain development just described are in areas linked to executive function. An increasing focus of interest in the study of children with ADHD is their difficulty on tasks involving executive function, such as behavioral inhibition when necessary, use of working memory, and effective planning (Dovis & others, 2015). Researchers also have found deficits in theory of mind in children with ADHD (Mary & others, 2016). Children diagnosed with ADHD have an increased risk of school dropout, adolescent pregnancy, substance use problems, and antisocial behavior (Jaber & others, 2015; Miller, Loya, & Hinshaw, 2013; Notzon & others, 2016).

How Would You...?

As a human development and family studies professional, how would you advise parents who are hesitant about medicating their child who was recently diagnosed with a mild form of ADHD?

Stimulant medication such as Ritalin or Adderall (which has fewer side effects than Ritalin) is effective in improving the attention of many children with ADHD, but it usually does not improve their attention to the same level as in children who do not have ADHD (Sclar & others, 2012). A meta-analysis (statistical analysis that combines the results of many different studies) concluded that behavior management treatments are effective in reducing the effects of ADHD (Fabiano & others, 2009).

Researchers have often found that a combination of medication (such as Ritalin) and behavior management improves the behavior of children with ADHD better than medication alone or behavior management alone, although this treatment does not work in all cases (Parens & Johnston, 2009).

Recently, researchers have been exploring the possibility that three types of training exercises might reduce ADHD symptoms. First, *neurofeedback* can improve the attention of children with ADHD (Bluschke, Roessner, & Beste, 2016; Zuberer, Brandeis, & Drechsler, 2015). Neurofeedback trains individuals to become more aware of their physiological responses so they can attain better control over their brain's prefrontal cortex, where executive control primarily occurs. Second, *mindfulness training* also has been found to decrease ADHD symptoms in children (Anderson & Guthery, 2015). For example, a recent meta-analysis concluded that mindfulness training significantly improved the attention of children with ADHD (Cairncross & Miller, 2016). And, third, physical exercise also is being investigated as a possible treatment for children with ADHD (Pan & others, 2016). A recent meta-analysis concluded that short-term aerobic exercise is effective in reducing symptoms such as inattention, hyperactivity, and impulsivity (Cerillo-Urbina & others, 2015). Another recent

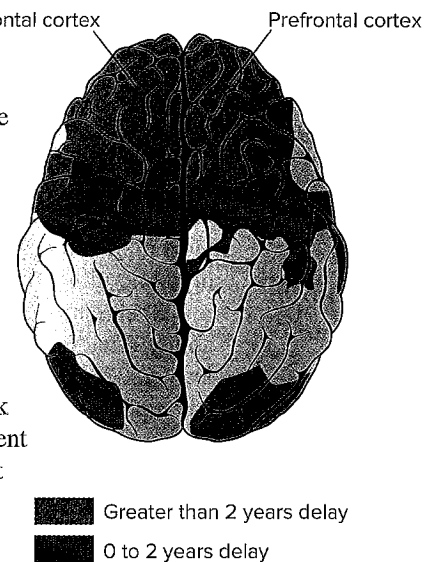


Figure 4 Regions of the Brain in Which Children with ADHD Had a Delayed Peak in the Thickness of the Cerebral Cortex

Note: The greatest delays occurred in the prefrontal cortex.



autism spectrum disorders

(ASD) Also called pervasive developmental disorders, they range from the severe disorder labeled autistic disorder to the milder disorder called Asperger syndrome. These disorders are characterized by problems in social interaction, verbal and nonverbal communication, and repetitive behaviors.

meta-analysis indicated that exercise is associated with better executive function in children with ADHD (Vysniauskas & others, 2016).

Autism Spectrum Disorders

Autism spectrum disorders (ASD), also called pervasive developmental disorders, range from the more severe disorder called *autistic disorder* to the milder disorder called *Asperger syndrome*. Autism spectrum disorders are characterized by problems in social interaction, problems in verbal and nonverbal

communication, and repetitive behaviors (Bernier & Dawson, 2016; Wheeler, Mayton, & Carter, 2015). Children with these disorders may also show atypical responses to sensory experiences (National Institute of Mental Health, 2016). Autism spectrum disorders can often be detected in children as young as 1 to 3 years of age.

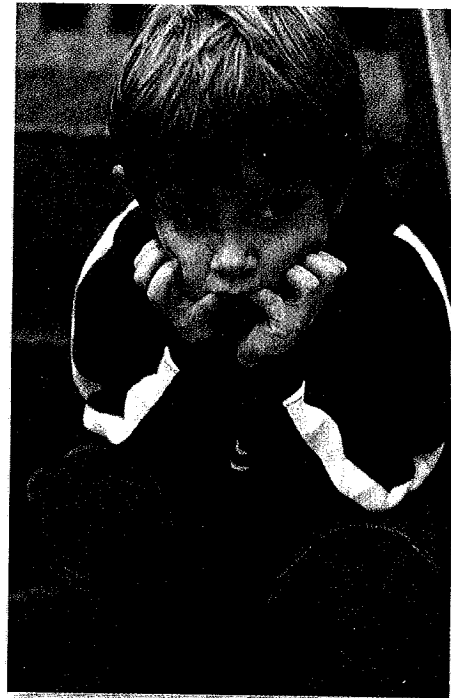
Recent estimates of autism spectrum disorders indicate that they are dramatically increasing in occurrence or are increasingly being detected. Once thought to affect only 1 in 2,500 children decades ago, they were estimated to be present in about 1 in 150 children in 2002 (Centers for Disease Control and Prevention, 2007) and 1 in 68 children in 2012 (Centers for Disease Control and Prevention, 2016). In the 2012 survey, autism spectrum disorders were identified five times more often in boys than in girls.

Autistic disorder is a severe developmental autism spectrum disorder that has its onset during the first three years of life and includes deficiencies in social relationships; abnormalities in communication; and restricted, repetitive, and stereotyped patterns of behavior.

Asperger syndrome is a relatively mild autism spectrum disorder in which the child has relatively good verbal language skills, milder nonverbal language problems, and a restricted range of interests and relationships (Barahona-Correa & Filipe, 2016; Helles & others, 2015). Children with Asperger syndrome often engage in obsessive, repetitive routines and preoccupations with a particular subject. For example, a child may be obsessed with baseball scores or YouTube videos.

What causes autism spectrum disorders? The current consensus is that autism is a brain dysfunction characterized by abnormalities in brain structure and neurotransmitters (Conti & others, 2015). Recent interest has focused on a lack of connectivity between brain regions as a key factor in autism (Fakhoury, 2015). Genetic factors also likely play a role in the development of autism spectrum disorders (Ning & others, 2015), but there is no evidence that family socialization causes autism. Intellectual disability is present in some children with autism, while others show average or above-average intelligence (Memari & others, 2012).

Children with autism benefit from a well-structured classroom, individualized teaching, and small-group instruction (Simmons, Lanter, & Lyons, 2014). Behavior modification techniques are sometimes effective in helping autistic children learn (Wheeler, Mayton, & Carter, 2015; Zirpoli, 2016).



What characterizes autism spectrum disorders?

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Educational Issues

Until the 1970s most U.S. public schools either refused enrollment to children with disabilities or inadequately served them. This changed in 1975, when *Public Law 94-142*, the Education for All Handicapped Children Act, required that all students with disabilities be given a free, appropriate public education. In 1990, Public Law 94-142 was recast as the *Individuals with Disabilities Education Act* (IDEA). IDEA

was amended in 1997 and then reauthorized in 2004 and renamed the Individuals with Disabilities Education Improvement Act.

IDEA spells out broad mandates for providing educational services to children with disabilities of all kinds (Heward, Alber-Morgan, & Konrad, 2017; Kirk, Gallagher, & Coleman, 2015). These services include evaluation and eligibility determination, appropriate education and an individualized education plan (IEP), and education in the least restrictive environment (LRE) (Hallahan, Kauffman, & Pullen, 2015).



IDEA mandates free, appropriate education for all children. *What services does IDEA mandate for children with disabilities?*

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An **individualized education plan (IEP)**

is a written statement that spells out a program that is specifically tailored for a student with a disability. The **least restrictive environment (LRE)** is a setting that is as similar as possible to the one in which children who do not have a disability are educated. This provision of the IDEA has given a legal basis to efforts to educate children with a disability in the regular classroom. The term **inclusion** describes educating a child with special educational needs full-time in the regular classroom (Friend & Bursuck, 2015; Lewis, Wheeler, & Carter, 2017). In a recent school year (2014), 61 percent of U.S. students with a disability spent more than 80 percent of their school day in a general classroom (compared with only 33 percent in 1990) (Condition of Education, 2015).

Many legal changes regarding children with disabilities have been extremely positive (Smith & others, 2016). Compared with several decades ago, far more children today are receiving competent, specialized services. For many children, inclusion in the regular classroom, with modifications or supplemental services, is appropriate (Turnbull & others, 2016). However, some leading experts on special education argue that some children with disabilities may not benefit from inclusion in the regular classroom. James Kauffman and his colleagues, for example, advocate a more individualized approach that does not necessarily involve full inclusion but allows options such as special education outside the regular classroom with trained professionals and adapted curricula (Kauffman, McGee, & Brigham, 2004). They go on to say, “We sell students with disabilities short when we pretend that they are not different from typical students. We make the same error when we pretend that they must *not* be expected to put forth extra effort if they are to learn to do some things—or learn to do something in a different way” (p. 620). Like general education, special education should challenge students with disabilities “to become all they can be.”

individualized education plan

(IEP) A written statement that spells out a program tailored to a child with a disability.

least restrictive environment

(LRE) The concept that a child with a disability should be educated in a setting that is as similar as possible to the one in which children who do not have a disability are educated.

inclusion Educating a child who requires special education full-time in the regular classroom.

Cognitive Changes

It is the wisdom of the human life span that at no time are children more ready to learn than during the period of expansive imagination at the end of early childhood. Do children enter a new stage of cognitive development in middle and late childhood?

Piaget's Cognitive Developmental Theory

According to Piaget (1952), the preschool child's thought is preoperational. Preschool children can form stable concepts, and they have begun to reason, but their thinking is flawed by egocentrism and magical belief systems. As we discussed in the chapter on physical and cognitive development in early childhood, however, Piaget may have underestimated the cognitive skills of preschool children. Some researchers argue that under the right conditions, young children may display abilities that are characteristic of Piaget's next stage of cognitive development, the stage of concrete operational thought (Gelman, 1969). Here we will cover the characteristics of concrete operational thought and evaluate Piaget's portrait of this stage.

The Concrete Operational Stage

Piaget proposed that the *concrete operational stage* lasts from approximately 7 to 11 years of age. In this stage, children can perform concrete operations, and they can reason logically as long as reasoning can be applied to specific or concrete examples. Remember that *operations* are mental actions that are reversible, and *concrete operations* are operations that are applied to real, concrete objects.

The conservation tasks described in the chapter on physical and cognitive development in early childhood indicate whether children are capable of concrete operations. For example, recall that in one task involving conservation of matter, the child is presented with two identical balls of clay. The experimenter rolls one ball into a long, thin shape; the other remains in its original ball shape. The child is then asked if there is more clay in the ball or in the long, thin piece of clay. By the time children reach the age of 7 or 8, most answer that the amount of clay is the same. To answer this problem correctly, children have to imagine the clay rolling back into a ball. This type of imagination involves a reversible mental action applied to a real, concrete object. Concrete operations allow the child to consider several characteristics rather than focus on a single property of an object. In the clay example, the preoperational child is likely to focus on height or width. The concrete operational child coordinates information about both dimensions.

What other abilities are characteristic of children who have reached the concrete operational stage? One important skill is the ability to classify or divide things into different sets or subsets and to consider their interrelationships. Consider the family tree of four generations that is shown in Figure 5 (Furth & Wachs, 1975). This family tree suggests that the grandfather (A) has three children (B, C, and D), each of whom has two children (E through J), and that one of these children (J) has three children (K, L, and M). A child who comprehends the classification system can move up and down a level, across a level, and up and down and across within the system. The concrete operational child understands that person J can at the same time be father, brother, and grandson, for example.

Children who have reached the concrete operational stage are also capable of **seriation**, which is the ability to order stimuli along a quantitative dimension (such as length). To see if students can serialize, a teacher might haphazardly place eight sticks of different lengths on a table. The teacher then asks the students to order the sticks by length. Many young children end up with two or three small groups of “big” sticks or “little” sticks, rather than a correct ordering of all eight sticks. Another ineffective strategy they use is to line up the tops of the sticks evenly but ignore the bottoms. The concrete operational thinker simultaneously understands that each stick must be longer than the one that precedes it and shorter than the one that follows it.

Another aspect of reasoning about the relations between classifications is **transitivity**, which is the ability to logically combine relations to understand certain conclusions. In this case, consider three sticks (A, B, and C) of

seriation The concrete operation that involves ordering stimuli along a quantitative dimension (such as length).

transitivity The ability to logically combine relations to understand certain conclusions.

differing lengths. A is the longest, B is intermediate in length, and C is the shortest. Does the child understand that if A is longer than B and B is longer than C, then A is longer than C? In Piaget's theory, concrete operational thinkers do; preoperational thinkers do not.

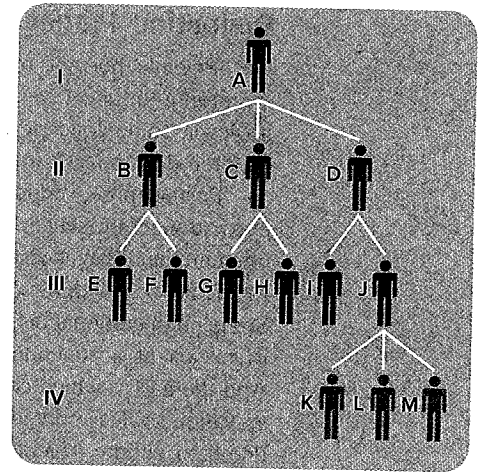


Figure 5 Classification: An Important Ability in Concrete Operational Thought

A family tree of four generations (I to IV): The preoperational child has trouble classifying the members of the four generations; the concrete operational child can classify the members vertically, horizontally, and obliquely (up and down and across). For example, the concrete operational child understands that a family member can be a son, a brother, and a father, all at the same time.

How Would You...?

As a **psychologist**, how would you characterize the contribution Piaget made to our current understanding of cognitive development in childhood?



Evaluating Piaget's Concrete Operational Stage

Has Piaget's portrait of the concrete operational child stood the test of research? According to Piaget, various aspects of a stage should emerge at the same time. In fact, however, some concrete operational abilities do not appear in synchrony. For example, children do not learn to conserve at the same time they learn to cross-classify.

Furthermore, education and culture exert stronger influences on children's development than Piaget reasoned (Gauvain & Perez, 2015; Goodnow & Lawrence, 2015). Some preoperational children can be trained to reason at a concrete operational stage. And the age at which children acquire conservation skills is related to how much practice their culture provides in these skills.

Thus, although Piaget was a giant in the field of developmental psychology, his conclusions about the concrete operational stage have been challenged. Later, after examining the final stage in his theory of cognitive development, we will further evaluate Piaget's contributions and the criticisms of his theory.

Neo-Piagetians argue that Piaget got some things right but that his theory needs considerable revision. They give more emphasis to how children use attention, memory, and strategies to process information (Case & Mueller, 2001). They especially believe that a more accurate portrayal of children's thinking requires attention to children's strategies, the speed at which children process information, the particular task involved, and the division of problems into smaller, more precise steps (Morra & others, 2008). These issues are addressed by the information-processing approach, and we will discuss some of them later in this chapter.



An outstanding teacher and education in the logic of science and mathematics are important cultural experiences that promote the development of operational thought. *Might Piaget have underestimated the roles of culture and schooling in children's cognitive development?*

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Information Processing

If we examine how children handle information during middle and late childhood instead of analyzing the type of thinking they display, what do we find? During these years, most children dramatically improve their ability to sustain and control attention (Ristic & Enns, 2015). Other changes in information processing during middle and late childhood involve memory, thinking, and metacognition (Casey & others, 2016; Swanson, 2016).

Memory

Short-term memory increases considerably during early childhood but after the age of 7 does not show as much increase. British cognitive psychologist Alan Baddeley (1990, 2001, 2007, 2010, 2012, 2013) defines **working memory** as a kind of mental “workbench” where individuals manipulate and assemble information when they make decisions, solve problems, and comprehend written and spoken language.

Working memory is described as being more active and powerful in modifying information than short-term memory. Working memory involves bringing information to mind and mentally working with or updating it, as when you link one idea to another and relate what you are reading now to something you read earlier.

Working memory develops slowly. Even by 8 years of age, children can only hold in memory half the items that adults can remember (Kharitonova, Winter, & Sheridan, 2015). Working memory is linked to many aspects of children's development (Cowan, Sauls, & Clark, 2015; Gerst & others, 2016). For example, children who have better working

neo-Piagetians Developmentalists who have elaborated on Piaget's theory, giving more emphasis to how children use attention, memory, and strategies to process information.

working memory A mental “workbench” where individuals manipulate and assemble information when making decisions, solving problems, and comprehending written and spoken language.

memory are more advanced in language comprehension, math skills, and problem solving than their counterparts with less effective working memory (Fuchs & others, 2016; Peng & Fuchs, 2016).

Long-term memory, a relatively permanent and unlimited type of memory, increases with age during middle and late childhood. In part, improvements in memory reflect children's increased knowledge and their increased use of strategies. Keep in mind that it is important not to view memory in terms of how children add something to it but rather to underscore how children actively construct their memory (Bauer, Hattenschwiler, & Larkina, 2016; Howe, 2015).

Knowledge and Expertise Much of the research on the role of knowledge in memory has compared experts and novices. *Experts* have acquired extensive knowledge about a particular content area; this knowledge influences what they notice and how they organize, represent, and interpret information (Ericsson & others, 2016; Gong, Ericsson, & Moxley, 2015). This in turn affects their ability to remember, reason, and solve problems. When individuals have expertise about a particular subject, their memory also tends to be good regarding material related to that subject (Staszewski, 2013).

For example, one study found that 10- and 11-year-olds who were experienced chess players ("experts") were able to remember more information about chess pieces than college students who were not chess players ("novices") (Chi, 1978). In contrast, when the college students were presented with other stimuli, they were able to remember them better than the children were. Thus, the children's expertise in chess gave them superior memories, but only regarding chess.

There are developmental changes in expertise (Blair & Somerville, 2009). Older children usually have more expertise about a subject than younger children do, which can contribute to their better memory for the subject.

Strategies Long-term memory depends on the learning activities individuals engage in when learning and remembering information. **Strategies** consist of deliberate mental activities to improve the processing of information. They do not occur automatically but require effort and work (Miller, McCulloch, & Jarrold, 2015). Following are some effective strategies for adults to use in helping children improve their memory skills:

- *Guide children to elaborate about the information they are to remember.* **Elaboration** involves more extensive processing of the information, such as thinking of examples or relating the information to one's own life. Elaboration makes the information more meaningful.
- *Encourage children to engage in mental imagery.* Mental imagery can help even young school children to remember visuals. However, for remembering verbal information, mental imagery works better for older children than for younger children.
- *Motivate children to remember material by understanding it rather than by memorizing it.* Children will remember information better over the long term if they understand the information rather than just rehearse and memorize it. Rehearsal works well for encoding information into short-term memory, but when children need to retrieve the information from long-term memory, it is much less efficient. For most information, encourage children to understand it, give it meaning, elaborate on it, and personalize it.
- *Repeat and vary instructional information, and link it to other information early and often.* These recommendations improve children's consolidation and reconsolidation of the information they are learning (Bauer, 2009). Varying the themes of a lesson increases the number of associations in memory storage, and linking the information expands the network of associations in memory storage; both strategies expand the routes for retrieving information from storage in the brain.
- *Embed memory-relevant language when instructing children.* Teachers who use mnemonic devices and metacognitive questions that encourage children to think about their thinking can improve student performance.

long-term memory A relatively permanent type of memory that holds huge amounts of information for a long period of time.

strategies Deliberate mental activities designed to improve the processing of information.

elaboration An important strategy that involves engaging in more extensive processing of information.

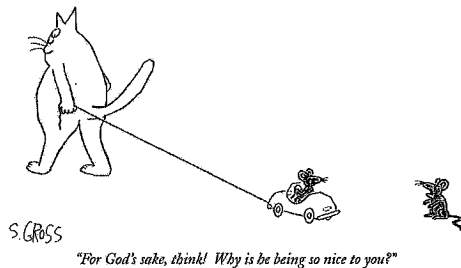
Fuzzy Trace Theory Might something other than knowledge and strategies be responsible for the improvement in memory during the elementary school years? Charles Brainerd and Valerie Reyna (2014) argue that fuzzy traces account for much of this improvement. Their **fuzzy trace theory** states that memory is best understood by considering two types of memory representations: (1) verbatim memory trace and (2) gist. The *verbatim memory trace* consists of the precise details of the information, whereas *gist* refers to the central idea of the information. When gist is used, fuzzy traces are built up. Although individuals of all ages extract gist, young children tend to store and retrieve verbatim traces. At some point during the early elementary school years, children begin to use gist more, and according to the theory, this contributes to the improved memory and reasoning of older children because fuzzy traces are more enduring and less likely to be forgotten than verbatim traces.

Thinking

Thinking involves manipulating and transforming information in memory. Two important aspects of thinking are being able to think critically and creatively.

Critical Thinking Currently there is considerable interest among psychologists and educators regarding critical thinking (Bonney & Sternberg, 2016; Cooney, 2015). **Critical thinking** involves thinking reflectively and productively, and evaluating evidence. In this book, the “How Would You . . . ?” questions in the margins challenge you to think critically about a topic or an issue related to the discussion.

Jacqueline and Martin Brooks (2001) lament that few schools really teach students to think critically and develop a deep understanding of concepts. Deep understanding occurs when students are stimulated to rethink previously held ideas. In Brooks and Brooks’ view, schools spend too much time getting students to give a single correct answer in an imitative way, rather than encouraging them to expand their thinking by coming up with new ideas and rethinking earlier conclusions. They observe that too often teachers ask students to recite, define, describe, state, and list, rather than to analyze, infer, connect, synthesize, criticize, create, evaluate, think, and rethink. Many successful students complete their assignments, do well on tests and get good grades, yet they don’t ever learn to think critically and deeply. They think superficially, staying on the surface of problems rather than stretching their minds and becoming deeply engaged in meaningful thinking.



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Recently, Robert Roeser and his colleagues (Roeser & Eccles, 2015; Roeser & others, 2014; Roeser & Zelazo, 2012) have emphasized that mindfulness is an important mental process that children can engage in to improve a number of cognitive and socioemotional skills, such as executive function, focused attention, emotion regulation, and empathy. *Mindfulness* involves paying careful attention to your thoughts, feelings, and environment (Britton & others, 2014). It has been proposed that mindfulness training could be implemented in schools through practices such as using age-appropriate activities that increase children’s reflection on moment-to-moment experiences and result in improved self-regulation (Roeser & Eccles, 2015). For example, a training program in mindfulness and caring for others was effective in improving the cognitive control of fourth- and fifth-graders (Schonert-Reichl & others, 2015). In other recent research, mindfulness training has been found to improve children’s attention and self-regulation (Poehlmann-Tynan & others, 2016); achievement (Singh & others, 2016); and coping strategies in stressful situations (Dariosis & others, 2016). Also, in a recent study, mindfulness-based intervention reduced stress in public school teachers (Taylor & others, 2016).

In addition to mindfulness, activities such as yoga, meditation, and tai chi have been recently suggested as candidates for improving children’s cognitive and socioemotional development. Together these activities are

fuzzy trace theory States that memory is best understood by considering two types of memory representations: (1) verbatim memory trace and (2) gist. In this theory, older children’s better memory is attributed to the fuzzy traces created by extracting the gist of information.

thinking Manipulating and transforming information in memory.

critical thinking Thinking reflectively and productively, as well as evaluating the evidence.

being grouped under the topic of *contemplative science*, a cross-disciplinary term that involves the study of how various types of mental and physical training might enhance children's development (Roeser & Eccles, 2015).

Creative Thinking Cognitively competent children not only think critically, but also creatively (Sternberg & Sternberg, 2016). **Creative thinking** is the ability to think in novel and unusual ways and to come up with unique solutions to problems. Thus, intelligence and creativity are not the same thing. This difference was recognized by J. P. Guilford (1967), who distinguished between **convergent thinking**, which produces one correct answer and characterizes the kind of thinking that is required on conventional tests of intelligence, and **divergent thinking**, which produces many different answers to the same question and characterizes creativity. For example, a typical item on a conventional intelligence test is "How many quarters will you get in return for 60 dimes?" In contrast, the following question has many possible answers: "What images come to mind when you hear the phrase 'sitting alone in a dark room' or 'some unique uses for a paper clip'?"

It is important to recognize that children will show more creativity in some domains than others (Baer & Kaufman, 2013). A child who shows creative thinking skills in mathematics may not exhibit these skills in art, for example. An important goal is to help children learn to think creatively.

A special concern today is that the creative thinking of children in the United States appears to be declining. A study of approximately 300,000 U.S. children and adults found that creativity scores rose until 1990, but since then have steadily declined (Kim, 2010). Among the likely causes of this decline are the amount of time U.S. children spend watching TV and playing video games instead of engaging in creative activities, as well as the lack of emphasis on creative thinking skills in schools (Gregorson, Kaufman, & Snyder, 2013). In some countries, though, there has been increasing emphasis on creative thinking in schools. For example, historically, creative thinking has typically been discouraged in Chinese schools. However, Chinese educators are now encouraging teachers to spend more classroom time on creative activities (Plucker, 2010).

How Would You...?

As a **psychologist**, how would you talk with teachers and parents about ways to improve children's creative thinking?

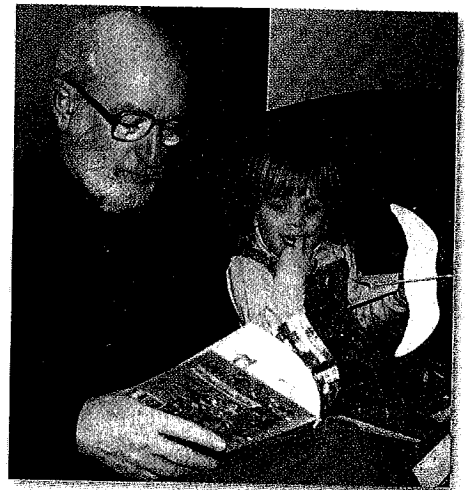


Metacognition

Metacognition is cognition about cognition, or knowing about knowing (Flavell, 2004). Many studies classified as "metacognitive" have focused on *metamemory*, or knowledge about memory. This includes general knowledge about memory, such as knowing that recognition tests are easier than recall tests. It also encompasses knowledge about one's own memory, such as a student's ability to monitor whether she has studied enough for a test that is coming up next week (Dimmitt & McCormick, 2012). Conceptualization of meta-

cognition consists of several dimensions of executive function, such as planning (deciding how much time to spend focusing on a task, for example) and self-regulation (modifying strategies as work on a task progresses, for example) (Dimmitt & McCormick, 2012; McCormick, Dimmitt, & Sullivan, 2013). Recent research found that metacognition involved children's confidence in their eyewitness judgments (Buratti, Allwood, & Johansson, 2014).

Young children do have some general knowledge about memory (Lukowski & Bauer, 2014). By 5 or 6 years of age, children usually already know that familiar items are easier to learn than unfamiliar ones, that short lists are easier to memorize than long ones, that recognition is easier than



Cognitive developmentalist John Flavell is a pioneer in providing insights about children's thinking. Among his many contributions are establishing the field of metacognition and conducting numerous studies in this area, including metamemory and theory of mind studies.

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creative thinking The ability to think in novel and unusual ways and to come up with unique solutions to problems.

convergent thinking The type of thinking that produces one correct answer and is typically assessed by standardized intelligence tests.

divergent thinking Thinking that produces many answers to the same question and is characteristic of creativity.

metacognition Cognition about cognition, or knowing about knowing.

recall, and that forgetting is more likely to occur over time (Lyon & Flavell, 1993). However, in other ways young children's metamemory is limited. They don't understand that related items are easier to remember than unrelated ones and that remembering the gist of a story is easier than remembering information verbatim (Kreutzer, Leonard, & Flavell, 1975). By the fifth grade, children do understand that gist recall is easier than verbatim recall.

Young children also have only limited knowledge about their own memory. They have an inflated opinion of their memory abilities. For example, in one study a majority of young children predicted that they would be able to recall all 10 items on a list of 10 items. When tested for this, however, none of the young children managed this feat (Flavell, Friedrichs, & Hoyt, 1970). As they move through the elementary school years, children can give more realistic evaluations of their memory skills.

In addition to metamemory, metacognition includes knowledge about memory strategies (McCormick, Dimmitt, & Sullivan, 2013). In the view of Michael Pressley (2007), the key to education is helping students learn a rich repertoire of strategies that produce solutions to problems. Good thinkers routinely use strategies and effective planning to solve problems. Good thinkers also know when and where to use strategies. Understanding when and where to use strategies often results from monitoring the learning situation (Dimmitt & McCormick, 2012).

How Would You...?

As an **educator**, how would you advise teachers and parents about ways to improve children's metacognitive skills?



Executive Function

Earlier you read about executive function and its characteristics in early childhood (Griffin, Freund, & McCardle, 2015; Müller & Kerns, 2015). Some of the cognitive topics we already have discussed in this chapter—working memory, critical thinking, creative thinking, and metacognition—can be considered under the umbrella of executive function and linked to the development of the brain's prefrontal cortex (Casey & others, 2016; Groppe & Elsner, 2016; Moriguchi, Chevalier, & Zelazo, 2016).

Also, earlier in the chapter in the coverage of brain development in middle and late childhood, you read about the increase in cognitive control, which involves flexible and effective control in a number of areas such as focusing attention, reducing interfering thoughts, inhibiting motor actions, and exercising flexibility in deciding between competing choices.

Adele Diamond and Kathleen Lee (2011) recently highlighted the following dimensions of executive function that they conclude are the most important for 4- to 11-year-old children's cognitive development and school success:



What are some changes in executive function from 4 to 11 years of age?

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- **Self-control/inhibition.** Children need to develop self-control that will allow them to concentrate and persist on learning tasks, to inhibit their tendencies to repeat incorrect responses, and to resist the impulse to do something that they later would regret.
- **Working memory.** Children need an effective working memory to mentally work with the masses of information they will encounter as they go through school and beyond.
- **Flexibility.** Children need to be flexible in their thinking so as to consider different strategies and perspectives.

Researchers have found that executive function is a better predictor of school readiness than general IQ (Blair & Razza, 2007). A number of diverse activities have been found to increase children's executive function, such as computerized training that uses games to improve working memory (Cogmed, 2013); aerobic exercise (Hillman & others, 2014); mindfulness (Gallant, 2016); scaffolding of self-regulation (Bodrova & Leong, 2015); and some types of school curricula (the Montessori curriculum, for example) (Diamond, 2013; Diamond & Lee, 2011).

Intelligence

How can intelligence be defined? **Intelligence** is the ability to solve problems and to adapt and learn from experiences. Interest in intelligence has often focused on individual differences and assessment. *Individual differences* are the stable, consistent ways in which people differ from each other. We can talk about individual differences in personality or any other domain, but it is in the domain of intelligence that the most attention has been directed at individual differences. For example, an intelligence test purports to inform us about whether a student can reason better than others who have taken the test. Let's go back in history and see what the first intelligence test was like.

intelligence Problem-solving skills and the ability to learn from, and adapt to, the experiences of everyday life.

mental age (MA) Binet's measure of an individual's level of mental development, compared with that of others.

intelligence quotient (IQ) A person's mental age divided by chronological age and multiplied by 100.

The Binet Tests

In 1904, the French Ministry of Education asked psychologist Alfred Binet to devise a method of identifying children who were unable to learn in school. School officials wanted to reduce crowding by placing students who did not benefit from regular classroom teaching in special schools. Binet and his student Theophile Simon developed an intelligence test to meet this request. The test is called the *1905 Scale*. It consists of 30 questions on topics ranging from the ability to touch one's ear to the ability to draw designs from memory and define abstract concepts.

Binet developed the concept of **mental age (MA)**, an individual's level of mental development relative to others. A few years later, in 1912, William Stern created the concept of **intelligence quotient (IQ)**, a person's mental age divided by chronological age (CA) and multiplied by 100. That is, $IQ = MA/CA \times 100$. If mental age is the same as chronological age, then the person's IQ is 100. If mental age is above chronological age, then IQ is more than 100. If mental age is below chronological age, then IQ is less than 100.

The Binet test has been revised many times to incorporate advances in the understanding of intelligence and intelligence tests. These revisions are called the *Stanford-Binet tests* (Stanford University is where the revisions have been done). In 2004, the test—now called the *Stanford-Binet 5*—was revised to analyze an individual's response in five content areas: fluid reasoning, knowledge, quantitative reasoning, visual-spatial reasoning, and working memory. A general composite score also is still obtained.

By administering the test to large numbers of people of different ages (from preschool through late adulthood) from different backgrounds, researchers have found that scores on the Stanford-Binet approximate a normal distribution (see Figure 6).

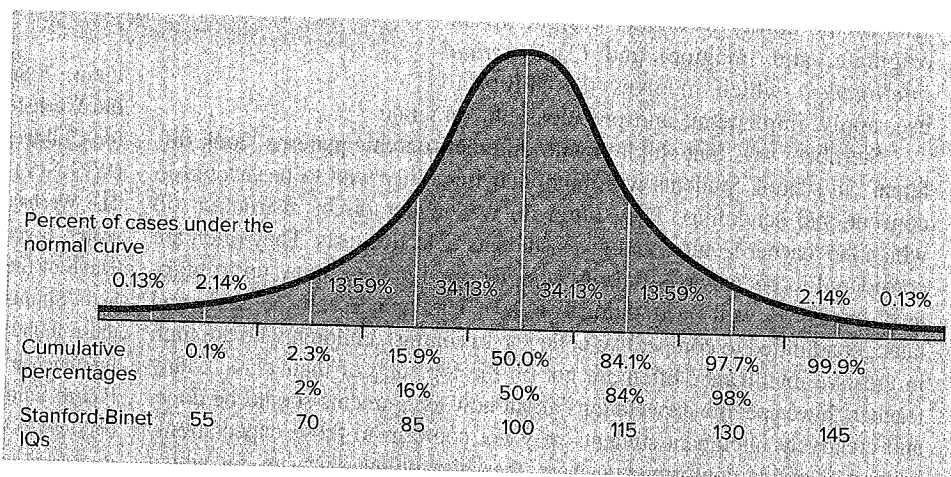


Figure 6 The Normal Curve and Stanford-Binet IQ Scores

The distribution of IQ scores approximates a normal curve. Most of the population falls in the middle range of scores. Notice that extremely high and extremely low scores are very rare. Slightly more than two-thirds of the scores fall between 85 and 115. Only about 1 in 50 individuals has an IQ of more than 130, and only about 1 in 50 individuals has an IQ of less than 70.

normal distribution A symmetrical distribution with most scores falling in the middle of the possible range of scores and few scores appearing toward the extremes of the range.

triarchic theory of intelligence Sternberg's theory that intelligence consists of analytical intelligence, creative intelligence, and practical intelligence.

A **normal distribution** is symmetrical, with a majority of the scores falling in the middle of the possible range of scores and few scores appearing toward the extremes of the range.

The Wechsler Scales

Another set of tests widely used to assess students' intelligence is called the Wechsler scales, developed by psychologist David Wechsler. They include the Wechsler Preschool and Primary Scale of Intelligence—Fourth Edition (WPPSI-IV) to test children from 2.5 years to 7.25 years of age; the Wechsler Intelligence Scale for Children—Fourth Edition (WISC-IV) for children and adolescents 6 to 16 years of age; and the Wechsler Adult Intelligence Scale—Fourth Edition (WAIS-IV).

The Wechsler subscales not only provide an overall IQ score but also yield several composite indexes, such as the Verbal Comprehension Index, the Working Memory Index, and the Processing Speed Index. These types of indexes allow the examiner to quickly identify the areas in which the child is strong or weak. Three of the Wechsler subscales are shown in Figure 7.

Types of Intelligence

Is it more appropriate to think of a child's intelligence as a general ability or as a number of specific abilities? Robert Sternberg and Howard Gardner have proposed influential theories that reflect this second viewpoint.

Sternberg's Triarchic Theory Robert J. Sternberg (1986, 2004, 2010, 2012, 2013, 2015a, b, 2016a, b, c) developed the **triarchic theory of intelligence**, which states that intelligence comes in three forms: (1) *analytical intelligence*, which refers to the ability to analyze, judge, evaluate, compare, and contrast; (2) *creative intelligence*, which consists of the ability to create, design, invent, originate, and imagine; and (3) *practical intelligence*, which involves the ability to use, apply, implement, and put ideas into practice.

Sternberg says that children with different triarchic patterns "look different" in school. Students with high analytic ability tend to be favored in conventional schooling. They often do well under direct instruction, in which the teacher lectures and gives students objective tests. They often are considered to be "smart" students who get good grades, show up in high-level tracks, do well on traditional tests of intelligence and the SAT, and later get admitted to competitive colleges. In contrast, children who are high in creative intelligence often are not on the top rung of their class. Many teachers have specific expectations about how assignments should be done, and creatively intelligent students may not conform to those expectations. Instead of giving conformist answers, they give unique answers, for which they might get reprimanded or marked down. No teacher wants to discourage creativity, but Sternberg stresses that too often a teacher's desire to increase students' knowledge suppresses creative thinking.

Like children high in creative intelligence, children who are practically intelligent often do not relate well to the demands of school. However,

Verbal Subscales

Similarities

A child must think logically and abstractly to answer a number of questions about how things might be similar.

Example: "In what way are a lion and a tiger alike?"

Comprehension

This subscale is designed to measure an individual's judgment and common sense.

Example: "What is the advantage of keeping money in a bank?"

Nonverbal Subscales

Block Design

A child must assemble a set of multicolored blocks to match designs that the examiner shows. Visual-motor coordination, perceptual organization, and the ability to visualize spatially are assessed.

Example: "Use the four blocks on the left to make the pattern on the right."

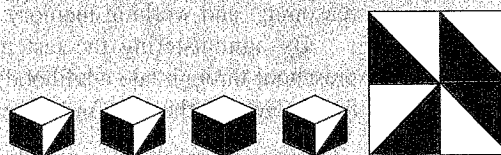


Figure 7 Sample Subscales of the Wechsler Intelligence Scale for Children—Fourth Edition (WISC-IV)

The Wechsler includes 11 subscales, 6 verbal and 5 nonverbal. Three of the subscales are shown here. Simulated items similar to those found in the Wechsler Intelligence Scale for Children—Fourth Edition.

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many of these children do well outside of the classroom's walls. They may have excellent social skills and good common sense. As adults, some become successful managers, entrepreneurs, or politicians in spite of having undistinguished school records.

Gardner's Eight Frames of Mind Howard Gardner (1983, 1993, 2002, 2014) suggests there are eight types of intelligence, or "frames of mind." These are described here, with examples of the types of vocations in which they are reflected as strengths (Campbell, Campbell, & Dickinson, 2004):

Verbal: The ability to think in words and use language to express meaning. Occupations: Authors, journalists, speakers.

Mathematical: The ability to carry out mathematical operations. Occupations: Scientists, engineers, accountants.

Spatial: The ability to think three-dimensionally. Occupations: Architects, artists, sailors.

Bodily-kinesthetic: The ability to manipulate objects and be physically adept. Occupations: Surgeons, craftspeople, dancers, athletes.

Musical: A sensitivity to pitch, melody, rhythm, and tone. Occupations: Composers, musicians, and sensitive listeners.

Interpersonal: The ability to understand and interact effectively with others. Occupations: Successful teachers, mental health professionals.

Intrapersonal: The ability to understand oneself. Occupations: Theologians, psychologists.

Naturalist: The ability to observe patterns in nature and understand natural and human-made systems. Occupations: Farmers, botanists, ecologists, landscapers.

According to Gardner, everyone has all of these intelligences to varying degrees. As a result, we prefer to learn and process information in specific ways. People learn best when they can do so in a way that uses their stronger intelligences.

Evaluating the Multiple-Intelligences Approaches Sternberg's and Gardner's approaches have much to offer. They have stimulated teachers to think more broadly about what makes up children's competencies. And they have motivated educators to develop programs that instruct students in multiple domains. These approaches have also contributed to interest in assessing intelligence and classroom learning in innovative ways, such as by evaluating student portfolios (Moran & Gardner, 2007).

Still, doubts about multiple-intelligences approaches persist. A number of psychologists think that the multiple-intelligences views have taken the concept of specific intelligences too far (Reeve & Charles, 2008). Some argue that a research base to support the three intelligences of Sternberg or the eight intelligences of Gardner has not yet emerged. One expert on intelligence, Nathan Brody (2007), observes that people who excel at one type of intellectual task are likely to excel in others. Thus, individuals who do well at memorizing lists of digits are also likely to be good at solving verbal problems and spatial layout problems. If musical skill reflects a distinct type of intelligence, ask other critics, why not label the skills of outstanding chess players, prizefighters, painters, and poets as types of intelligence?



Howard Gardner, shown here working with a young child, developed the concept that intelligence comprises eight kinds of skills: verbal, mathematical, spatial, bodily-kinesthetic, musical, intrapersonal, interpersonal, and naturalist.

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How Would You...?

As a **psychologist**, how would you use Gardner's theory of multiple intelligences to respond to children who are distressed by their below-average score on a traditional intelligence test?



Advocates of the concept of general intelligence point to its accuracy in predicting school and job success. For example, scores on tests of general intelligence are substantially correlated with school grades and achievement test performance, both at the time of the test and years later (Cucina & others, 2016; Strenze, 2007). For example, a recent meta-analysis of 240 independent samples and more than 100,000 individuals found a correlation of $+0.54$ between intelligence and school grades (Roth & others, 2015).

The argument between those who support the concept of general intelligence and those who advocate the multiple-intelligences view is ongoing (Gardner, 2014; Traskowski & others, 2014). Sternberg (2015a, b, 2016a, b, c) actually accepts that there is a general intelligence for the kinds of analytical tasks that traditional IQ tests assess but thinks that the range of tasks those tests measure is far too narrow.

Culture and Intelligence

Differing conceptions of intelligence occur not only among psychologists but also among cultures (Zhang & Sternberg, 2012). What is viewed as intelligent in one culture may not be thought of as intelligent in another. For example, people in Western cultures tend to view intelligence in terms of reasoning and thinking skills, whereas people in Eastern cultures see intelligence as a way for members of a community to engage successfully in social roles (Nisbett, 2003).

Interpreting Differences in IQ Scores

The IQ scores that result from tests such as the Stanford-Binet and Wechsler scales provide information about children's mental abilities. However, interpretation of scores on intelligence tests is a controversial topic.

The Influence of Genetics How strong is the effect of genetics on intelligence? Some researchers argue that heredity plays a strong role in intelligence (Zhao, Kong, & Qu, 2014), but this assertion is difficult to prove because teasing apart the influences of heredity and environment is virtually impossible. Also, most research on heredity and environment does not include environments that differ radically. Thus, it is not surprising that many genetic studies show environment to be a fairly weak influence on intelligence.

Have scientists been able to pinpoint specific genes that are linked to intelligence? A recent research review concluded that there may be more than 1,000 genes that affect intelligence, each possibly having a small influence on an individual's intelligence (Davies & others, 2011). However, researchers have not been able to identify the specific genes that contribute to intelligence (Deary, 2012).

One strategy for examining the role of heredity in intelligence is to compare the IQs of identical and fraternal twins. Recall that identical twins have exactly the same genetic makeup but fraternal twins do not. If intelligence

is genetically determined, say some investigators, identical twins' IQs should be more similar than those of fraternal twins. A research review of many studies found that the difference in the average correlation of intelligence between identical and fraternal twins was 0.15, suggesting a relatively low correlation between genetics and intelligence (Grigorenko, 2000) (see Figure 8).

Today, most researchers agree that genetics and environment interact to influence intelligence (Grigorenko & others, 2016; Sternberg, 2016a, b, c). For most people, this means that modifications in environment can change their IQ scores considerably. Although genetic endowment may always influence a person's intellectual ability, the environmental

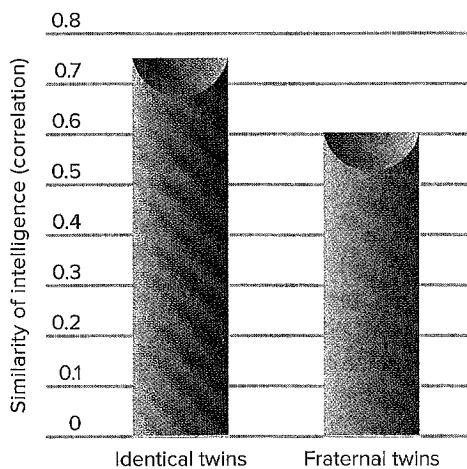


Figure 8 Correlation Between Intelligence Test Scores and Twin Status

The graph represents a summary of research findings that have compared the intelligence test scores of identical and fraternal twins. An approximate .15 difference has been found, with a higher correlation for identical twins (.75) and a lower correlation for fraternal twins (.60).

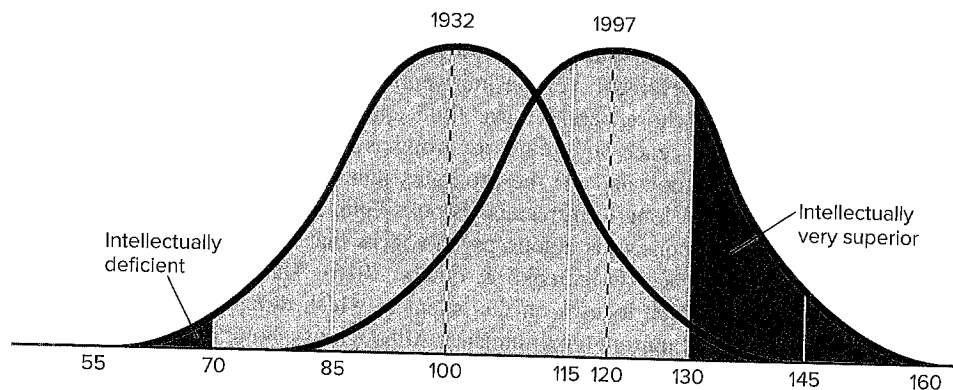


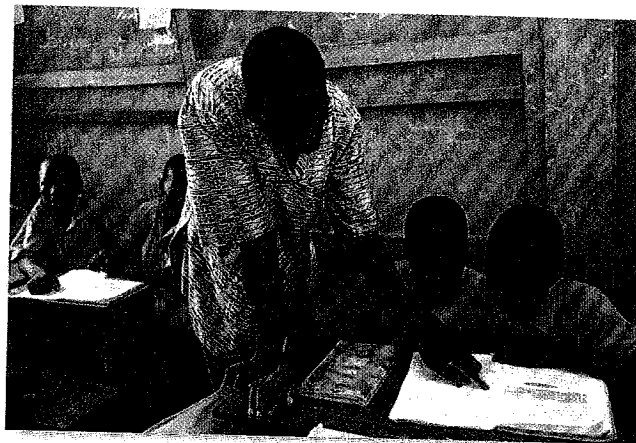
Figure 9 The Increase in IQ Scores from 1932 to 1997

As measured by the Stanford-Binet intelligence test, American children seem to be getting smarter. Scores of a group tested in 1932 fell along a bell-shaped curve with half below 100 and half above. Studies show that if children took that same test today, half would score above 120 on the 1932 scale. Very few of them would score in the “intellectually deficient” end on the left side, and about one-fourth would rank in the “very superior” range.

influences and opportunities we provide children and adults do make a difference (Grigorenko & others, 2016; Sternberg, 2016a, b, c).

Environmental Influences The environment’s role in intelligence is reflected in the 12- to 18-point increase in IQ when children are adopted from lower-SES to middle-SES homes (Nisbett & others, 2012). Environmental influences on intelligence also involve schooling (Gustafsson, 2007). The biggest effects have been found when large groups of children have been deprived of formal education for an extended period, resulting in lower intelligence (Ceci & Gilstrap, 2000). Another possible effect of education can be seen in rapidly increasing IQ test scores around the world (Flynn, 1999, 2007, 2011, 2013; Flynn & Blair, 2013). IQ scores have been increasing so fast that a high percentage of people regarded as having average intelligence at the turn of the century would be considered below average in intelligence today (see Figure 9). If a representative sample of people today took the Stanford-Binet test version used in 1932, about 25 percent would be defined as having very superior intelligence, a label usually accorded to fewer than 3 percent of the population. Because the increase has taken place in a relatively short time, it can’t be due to heredity, but rather may be due to increasing levels of education attained by a much greater percentage of the world’s population, or to other environmental factors such as the explosion of information to which people are exposed (Flynn & Blair, 2013). The worldwide increase in intelligence test scores that has occurred over a short time frame has been called the *Flynn effect* after the researcher who discovered it, James Flynn.

Researchers are increasingly concerned about improving the early environment of children who are at risk for impoverished intelligence (Currie & Rossin-Slater, 2015; Duncan, Magnuson, & Votruba-Drzal, 2015; O’Connor, 2016). For various reasons, many low-income parents have difficulty providing an intellectually stimulating environment for their children. Programs that educate parents to be more sensitive caregivers and better teachers, as well as access to support services such as quality child-care programs, can make a difference in a child’s intellectual development (Burchinal & others, 2015). Thus the efforts to counteract a deprived early environment’s effect on intelligence emphasize prevention rather than remediation.



Students in an elementary school in South Africa. How might schooling influence the development of children’s intelligence?

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A review of the research on early interventions concluded that (1) high-quality child-care center-based interventions are associated with increases in children's intelligence and school achievement; (2) the interventions are most successful with poor children and children whose parents have little education; (3) the positive benefits continue through adolescence but are not as strong as in early childhood or the beginning of elementary school; and (4) the programs that continue into middle and late childhood have the best long-term results (Brooks-Gunn, 2003).

In sum, there is a consensus among psychologists that both heredity and environment influence intelligence (Grigorenko & others, 2016). This consensus reflects the nature-nurture issue, which focuses on the extent to which development is influenced by nature (heredity) and nurture (environment). Although psychologists agree that intelligence is the product of both nature and nurture, there is still disagreement about how strongly each influences intelligence.

Group Differences On average, African American schoolchildren in the United States score 10 to 15 points lower on standardized intelligence tests than non-Latino White American schoolchildren do (Brody, 2000). Children from Latino families also score lower than non-Latino White children. These are *average scores*, however; there is significant overlap in the distribution of scores. About 15 to 25 percent of African American schoolchildren score higher than half of White schoolchildren do, and many White schoolchildren score lower than most African American schoolchildren. As African Americans have gained social, economic, and educational opportunities, the gap between African Americans and Whites on standardized intelligence tests has begun to narrow. This gap especially narrows in college, where African American and White students often experience more similar environments than in the elementary and high school years (Myerson & others, 1998). Further, a recent study using the Stanford Binet Intelligence Scales found no differences in overall intellectual ability between non-Latino White and African American preschool children when the children were matched on age, gender, and parental education level (Dale & others, 2014). Nonetheless, a recent analysis concluded that the underrepresentation of African Americans in STEM (science, technology, engineering, and math) subjects and careers is linked to practitioners' expectations that they have less innate talent than non-Latino Whites (Leslie & others, 2015).

Creating Culture-Fair Tests **Culture-fair tests** are tests of intelligence that are intended to be free of cultural bias. Two types of culture-fair tests have been devised. The first includes items that are familiar to children from all socioeconomic and ethnic backgrounds, or items that at least are familiar to the children taking the test. For example, a child might be asked how a bird and a dog are different, on the assumption that all children have been exposed to birds and dogs. The second type of culture-fair test has no verbal questions.

Why is it so hard to create culture-fair tests? Most tests tend to reflect what the dominant culture thinks is important (Zhang & Sternberg, 2012). If tests have time limits, that will bias the test against groups not concerned with time. If languages differ, the same words might have different meanings for different language groups. Even pictures can produce bias because some cultures have less experience with drawings and photographs. Because of such difficulties in creating culture-fair tests, Robert Sternberg (2012) concludes that there are no culture-fair tests, only *culture-reduced tests*.

Extremes of Intelligence

culture-fair tests Tests of intelligence that are designed to be free of cultural bias.

intellectual disability A condition of limited mental ability in which an individual has a low IQ, usually below 70 on a traditional test of intelligence, and has difficulty adapting to the demands of everyday life.

Intelligence tests have been used to discover indications of intellectual disability or giftedness, the extremes of intelligence. At times, they have been misused for this purpose. Keeping in mind the theme that an intelligence test should not be used as the sole indicator of intellectual disability or giftedness, we will explore the nature of these intellectual extremes.

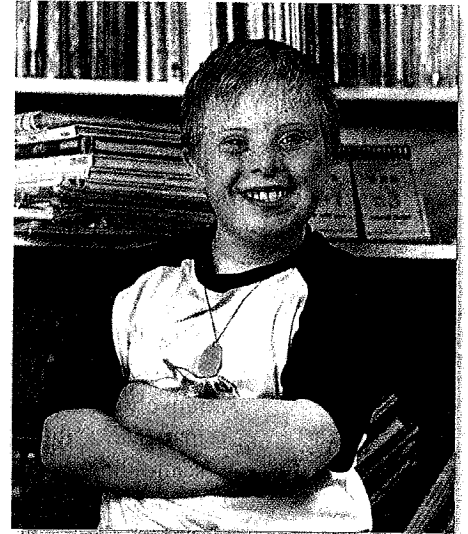
Intellectual Disability **Intellectual disability** is a condition of limited mental ability in which an individual has a low IQ, usually below 70 on

a traditional intelligence test, and has difficulty adapting to the demands of everyday life (Burack & others, 2016). About 5 million Americans fit this definition of intellectual disability.

About 89 percent of the individuals with an intellectual disability fall into the mild intellectual disability category, with IQs of 55 to 70; most of them are able to live independently as adults and work at a variety of jobs. About 6 percent are classified as having a moderate intellectual disability, with IQs of 40 to 54; these people can attain a second-grade level of skills and may be able to support themselves as adults through some types of labor. About 3.5 percent are in the severe category, with IQs of 25 to 39; these individuals learn to talk and accomplish very simple tasks but require extensive supervision. Less than 1 percent have IQs below 25; they fall into the profoundly disabled classification and need constant supervision.

Intellectual disability can have an organic cause, or it can be social and cultural in origin:

- **Organic intellectual disability** is intellectual disability that is caused by a genetic disorder or by brain damage; the word *organic* refers to the tissues or organs of the body, indicating physical damage. Most people who suffer from organic intellectual disability have IQs that range between 0 and 50. However, children with Down syndrome have an average IQ of approximately 50. As discussed earlier, Down syndrome is caused by an extra copy of chromosome 21.
- **Cultural-familial intellectual disability** is a mental deficit in which no evidence of organic brain damage can be found; individuals' IQs generally range from 50 to 70. Psychologists suspect that such mental deficits result from the normal variation that distributes people along the range of intelligence scores combined with growing up in a below-average intellectual environment.



What causes a child to develop Down syndrome?
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Giftedness There have always been people whose abilities and accomplishments outshine others'—the whiz kid in class, the star athlete, the natural musician. People who are **gifted** have above-average intelligence (an IQ of 130 or higher) or superior talent for something or both. When it comes to programs for the gifted, most school systems select children who have intellectual superiority and academic aptitude, whereas children who are talented in the visual and performing arts (arts, drama, dance, music), athletics, or other special aptitudes tend to be overlooked (Olszewski-Kubilius & Thomson, 2013). There also are increasing calls to further expand the criteria for giftedness to include such factors as creativity and commitment (Ambrose & Steinberg, 2016a, b).

Estimates vary but indicate that approximately 3 to 5 percent of U.S. students are gifted (National Association for Gifted Children, 2009). This percentage is likely conservative because it focuses more on children who are gifted intellectually and academically, often failing to include those who are gifted in creative thinking or the visual and performing arts (Ford, 2012). Also, African American, Latino, and Native American children are underrepresented in gifted programs (Ford, 2012, 2015a, b, 2016). Much of the underrepresentation involves the lower test scores for these children compared with non-Latino White and Asian American children, which may be due to a number of reasons such as test bias and fewer opportunities to develop language skills such as vocabulary and comprehension (Ford, 2012, 2015a, b, 2016).

What are the characteristics of children who are gifted? Despite speculation that giftedness is linked with having a mental disorder, no relation between giftedness and mental disorder has been found. Similarly, the idea that gifted children are maladjusted is a myth, as Lewis Terman (1925) found when he conducted an extensive study of 1,500 children whose Stanford-Binet IQs averaged 150. The children in Terman's study

organic intellectual disability Intellectual disability that involves some physical damage and is caused by a genetic disorder or brain damage.

cultural-familial intellectual disability Intellectual disability in which there is no evidence of organic brain damage, but the individual's IQ generally is between 50 and 70.

gifted Having above-average intelligence (an IQ of 130 or higher) and/or superior talent for something.

were socially well adjusted, and many went on to become successful doctors, lawyers, professors, and scientists. Studies support the conclusion that gifted people tend to be more mature than others, have fewer emotional problems than average, and grow up in a positive family climate (Feldman, 2001). For example, a recent study revealed that parents and teachers identified elementary school children who are not gifted as having more emotional and behavioral risks than children who are gifted (Eklund & others, 2015). In this study, when children who are gifted did have problems, they were more likely to be internalized problems, such as anxiety and depression, than externalized problems, such as acting out and high levels of aggression.

Ellen Winner (1996) described three criteria that characterize gifted children, whether in art, music, or academic domains:

1. *Precocity.* Gifted children are precocious. They begin to master an area earlier than their peers. Learning in their domain is more effortless for them than for ordinary children. In most instances, these gifted children are precocious because they have an inborn high ability in a particular domain or domains.
2. *Marching to a different drummer.* Gifted children learn in a qualitatively different way from ordinary children. One way that they march to a different drummer is that they need minimal help, or scaffolding, from adults to learn. In many instances, they resist any kind of explicit instruction. They often make discoveries on their own and solve problems in unique ways.
3. *A passion to master.* Gifted children are driven to understand the domain in which they have high ability. They display an intense, obsessive interest and an ability to focus. They motivate themselves, says Winner, and do not need to be “pushed” by their parents.
4. *Information-processing skills.* Researchers have found that children who are gifted learn at a faster pace, process information more rapidly, are better at reasoning, use superior strategies, and monitor their understanding better than their nongifted counterparts (Ambrose & Sternberg, 2016a).

Is giftedness a product of heredity or environment? The answer is likely both (Duggan & Friedman, 2014; Johnson & Bouchard, 2014). Individuals who are gifted recall that they had signs of high ability in a particular area at a very young age, prior to or at the beginning of formal training (Howe & others, 1995). This suggests the importance of innate ability in giftedness. However, researchers have also found that individuals with world-class status in the arts, mathematics, science, and sports all report strong family support and years of training and practice (Bloom, 1985). Deliberate practice is an important characteristic of individuals who become experts in a particular domain. For example, in one study, the best musicians engaged in twice as much deliberate practice over their lives as did the least successful ones (Ericsson, Krampe, & Tesch-Romer, 1993).

Individuals who are highly gifted are typically not gifted in many domains, and research on giftedness is increasingly focused on domain-specific developmental paths (Kell & Lubinski, 2014; Sternberg & Bridges, 2014). During the childhood years, the domain(s) in which individuals are gifted usually emerges. Thus, at some point in the childhood years, the child who will become a gifted artist or the child who will

become a gifted mathematician begins to show expertise in that domain. Regarding domain-specific giftedness, software genius Bill Gates (1998), the founder of Microsoft and one of the world’s richest people, commented that when you are good at something, you may have to resist the urge to think that you will be good at everything. Because he has been so successful at software



At 2 years of age, art prodigy Alexandra Nechita (shown here as a teenager) colored in coloring books for hours and also took up pen and ink. She had no interest in dolls or friends. By age 5 she was using watercolors. Once she started school, she would paint as soon as she got home. At age 8, she saw the first public exhibit of her work. In succeeding years, working quickly and impulsively on canvases as large as 5 feet by 9 feet, she has completed hundreds of paintings, some of which sell for close to \$100,000 apiece. Now in her early thirties, she continues to paint—relentlessly and passionately. It is, she says, what she loves to do. *What are some characteristics of children who are gifted?*

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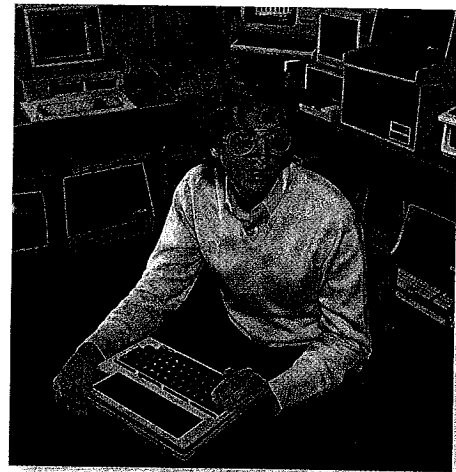


How Would You...?

As an **educator**, how would you structure educational programs for children who are gifted that would challenge and expand their talents?

development, he has found that people also expect him to be brilliant in other domains in which he is far from gifted.

An increasing number of experts argue that the education of children who are gifted in the United States requires a significant overhaul (Reis & Renzulli, 2014). Ellen Winner (1996, 2009) argues that too often children who are gifted are socially isolated and underchallenged in the classroom. It is not unusual for other students to label them “nerds” or “geeks.” Many eminent adults report that school was a negative experience for them, that they were bored and sometimes knew more than their teachers (Bloom, 1985). Winner argues that American students will benefit more from their education when standards are raised for all children. She recommends that some underchallenged students be allowed to attend advanced classes in their domain of exceptional ability, such as allowing some precocious middle school students to take college classes in their area of expertise. For example, at age 13, Bill Gates took college math classes and hacked a computer security system; Yo-Yo Ma, famous cellist, graduated from high school at 15 and attended Juilliard School of Music in New York City.



A young Bill Gates, founder of Microsoft and now one of the world's richest people. Like many highly gifted students, Gates was not especially fond of school. He hacked a computer security system when he was 13 and was allowed to take some college math classes during high school. He dropped out of Harvard University and began developing a plan for what was to become Microsoft Corporation. *What are some ways that schools can enrich the education of highly talented students to make it a more challenging and meaningful experience?*

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Language Development

Children gain new skills as they enter school that make it possible for them to learn to read and write (Bailey, Osipova, & Kelly, 2016). These include increased use of language to talk about things that are not physically present, learning what a word is, and learning how to recognize and talk about sounds (Berko Gleason, 2003). They also learn the *alphabetic principle*—that the letters of the alphabet represent sounds of the language.

Vocabulary, Grammar, and Metalinguistic Awareness

During middle and late childhood, changes occur in the way children's mental vocabulary is organized. When asked to say the first word that comes to mind when they hear a word, preschool children typically provide a word that often follows the word in a sentence. For example, when asked to respond to “dog” the young child may say “barks,” or to the word “eat” respond with “lunch.” At about 7 years of age, children begin to respond with a word that is the same part of speech as the stimulus word. For example, a child may now respond to the word “dog” with “cat” or “horse.” To “eat,” they now might say “drink.” This is evidence that children of this age have begun to categorize their vocabulary by parts of speech (Berko Gleason, 2003).

The process of categorizing becomes easier as children increase their vocabulary (Clark, 2012, 2017). Children's vocabulary increases from an average of about 14,000 words at age 6 to an average of about 40,000 words by age 11.

Children make similar advances in grammar (Behrens, 2012; Clark, 2017). During the elementary school years, children's improvement in logical reasoning and analytical skills helps them understand such constructions as the appropriate use of comparatives (*shorter, deeper*) and subjectives (“If you were president . . .”). During the elementary school years, children become increasingly able to understand and use complex grammar, such as the following sentence: *The boy who kissed his mother wore a hat.* They also learn to use language in a more connected way, producing connected discourse. They become able to relate sentences to one another to produce descriptions, definitions, and narratives that make sense. Children must be able to do these things orally before they can be expected to deal with them in written assignments.

These advances in vocabulary and grammar during the elementary school years are accompanied by the development of **metalinguistic awareness**, which is knowledge about language, such as knowing what a preposition is or being able to discuss the sounds of a language (Tong, Deacon, & Cain, 2014). Metalinguistic awareness allows children “to think about their language, understand what words are, and even define them” (Berko Gleason, 2009, p. 4). It improves considerably during the elementary school years (Pan & Uccelli, 2009). Defining words becomes a regular part of classroom discourse, and children increase their knowledge of syntax as they study and talk about the components of sentences, such as subjects and verbs (Crain, 2012).

Children also make progress in understanding how to use language in culturally appropriate ways—a process called pragmatics (Bryant, 2012). By the time they enter adolescence, most children know the rules for the use of language in everyday contexts—that is, what is appropriate and inappropriate to say.

Reading

Before learning to read, children learn to use language to talk about things that are not present; they learn what a word is; and they learn how to recognize sounds and talk about them. Children who begin elementary school with a robust vocabulary have an advantage when it comes to learning to read.

How should children be taught to read? Currently, one debate focuses on the whole-language approach versus the phonics approach (Lloyd & others, 2015; Reutzel & Cooter, 2015).

The **whole-language approach** stresses that reading instruction should parallel children’s natural language learning. In some whole-language classes, beginning readers

are taught to recognize whole words or even entire sentences, and to use the context of what they are reading to guess at the meaning of words. Reading materials that support the whole-language approach are whole and meaningful—that is, children are given material in its complete form, such as stories and poems, so that they learn to understand language’s communicative function. Reading is connected with listening and writing skills. Although there are variations in whole-language programs, most share the premise that reading should be integrated with other skills and subjects, such as science and social studies, and that it should focus on real-world material. Thus, a class might read newspapers, magazines, or books, and then write about and discuss what they have read.

In contrast, the **phonics approach** emphasizes that reading instruction should teach basic rules for translating written symbols into sounds. Early phonics-centered reading instruction should involve simplified materials. Only after children have learned correspondence rules that relate spoken phonemes to the alphabet letters that are used to represent them should they be given complex reading materials, such as books and poems.

Which approach is better? Research suggests that children can benefit from both approaches, but instruction in phonics needs to be emphasized (Del Campo & others, 2015; Tompkins, 2015). An increasing number of experts in the field of reading now conclude that direct instruction in phonics is a key aspect of learning to read (Cunningham, 2013).

Beyond the phonics/whole language issue in learning to read, becoming a good reader includes learning to read fluently (Allington, 2015). Many beginning or poor readers do not recognize words automatically. Their processing capacity is consumed by the demands of word recognition, so they have less comprehension of groupings of words as

metalinguistic awareness Refers to knowledge about language, such as knowing what a preposition is or being able to discuss the sounds of a language.

whole-language approach An approach to reading instruction based on the idea that instruction should parallel children’s natural language learning. Reading materials should be whole and meaningful.

phonics approach The idea that reading instruction should teach the basic rules for translating written symbols into sounds.



A teacher helps a student sound out words. Researchers have found that phonics instruction is a key aspect of teaching students to read, especially beginning readers and students with weak reading skills.

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phrases or sentences. As their processing of words and passages becomes more automatic, it is said that their reading becomes more *fluent*. Metacognitive strategies, such as learning to monitor one's reading progress, getting the gist of what is being read, and summarizing also are important in becoming a good reader (McCormick, Dimmitt, & Sullivan, 2013).

Second-Language Learning and Bilingualism

Are there sensitive periods in learning a second language? That is, if individuals want to learn a second language, how important is the age at which they begin to learn it? What is the best way for U.S. schools to teach children who come from homes in which English is not the primary language?

Second-Language Learning

For many years, it was claimed that if individuals did not learn a second language prior to puberty they would never reach native-language learners' proficiency in the second language (Johnson & Newport, 1991). However, recent research indicates a more complex conclusion: There are sensitive periods for learning a second language. Additionally, these sensitive periods likely vary across different areas of language systems (Thomas & Johnson, 2008). For example, late language learners, such as adolescents and adults, may learn new vocabulary more easily than new sounds or new grammar (Neville, 2006). Also, children's ability to pronounce words with a native-like accent in a second language typically decreases with age, with an especially sharp drop occurring after the age of about 10 to 12. Adults tend to learn a second language faster than children, but their level of second-language mastery is not as high as children's. And the way children and adults learn a second language differs somewhat. Compared with adults, children are less sensitive to feedback, less likely to use explicit strategies, and more likely to learn a second language from large amounts of input (Thomas & Johnson, 2008).

Students in the United States are far behind their counterparts in many developed countries in learning a second language. For example, in Russia, schools have 10 grades, called *forms*, which roughly correspond to the 12 grades in American schools. Russian children begin school at age 7 and begin learning English in the third form. Because of this emphasis on teaching English, most Russian citizens under the age of 40 today are able to speak at least some English. The United States is the only technologically advanced Western nation that does not have a national foreign language requirement at the high school level, even for students in rigorous academic programs.

U.S. students who do not learn a second language may be missing more than the chance to acquire a skill. *Bilingualism*—the ability to speak two languages—has a positive effect on children's cognitive development (Tompkins, 2015). Children who are fluent in two languages perform better than their single-language counterparts on tests of control of attention, concept formation, analytical reasoning, cognitive flexibility, and cognitive complexity (Bialystok, 2001, 2007, 2011, 2014, 2015; Bialystok & Craik, 2010; Sullivan & others, 2014). They also are more conscious of the structure of spoken and written language and better at noticing errors of grammar and meaning, skills that benefit their reading ability (Bialystok, 1997; Kuo & Anderson, 2012).

Research indicates that bilingual children do have a smaller vocabulary in each language than monolingual children (Bialystok, 2011). Most children who learn two languages are not exposed to the same quantity and quality of each language. However, bilingual children do not show delays in the rate at which they acquire language overall (Hoff, 2016). In a recent study, by 4 years of age children who continued to learn Spanish and English languages had a total vocabulary growth that was greater than that of monolingual children (Hoff & others, 2014).

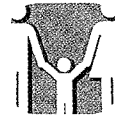
Overall, bilingualism is linked to more positive outcomes for both children's language and cognitive development. An especially important developmental question that many parents of infants and young children have is whether they should teach them two languages simultaneously or whether doing this would confuse them. The answer is that teaching infants and young children two languages simultaneously

(as when a mother's native language is English and her husband's is Spanish) has numerous benefits and few drawbacks (Bialystok, 2014, 2015).

In the United States, many immigrant children go from being monolingual in their home language to bilingual in that language and in English, only to end up as monolingual speakers of English. This is called *subtractive bilingualism*, and it can have negative effects on children, who often become ashamed of their home language.

How Would You...?

As a human development and family studies professional, how would you describe the advantages of promoting bilingualism in the home for school-age children in the United States who come from families whose first language is not English?



Bilingual Education

A current controversy related to bilingualism involves the millions of U.S. children who come from homes in which English is not the primary language (Echevarria, Vogt, & Short, 2017; Peregoy & Boyle, 2017). What is the best way to teach these English language learners (ELLs)?

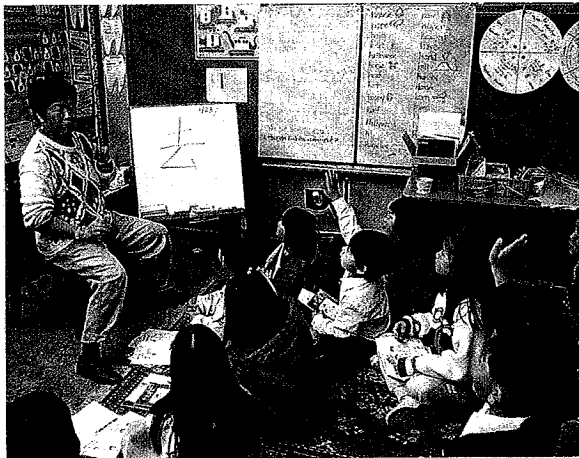
ELLs have been taught in one of two main ways: (1) instruction in English only, or (2) a *dual-language* (used to be called *bilingual*) approach that involves instruction in their home language and English. In a dual-language approach, instruction is given in both the ELL child's home language and English for varying amounts of time at certain grade levels. One of the arguments for the dual-language approach is the research discussed earlier demonstrating that bilingual children have more advanced information-processing skills than monolingual children do.

If a dual-language strategy is used, too often it has been thought that immigrant children need only one or two years of this type of instruction. However, in general it takes immigrant children approximately three to five years to develop speaking proficiency and seven years to develop reading proficiency in English (Hakuta, Butler, & Witt, 2000). Also, immigrant children vary in their ability to learn English. Children who come from lower socioeconomic backgrounds have more difficulty than those from higher socioeconomic backgrounds (Hakuta, 2001). Thus, especially for immigrant children from low socioeconomic backgrounds, more years of dual-language instruction may be needed than they currently are receiving.

What have researchers found regarding outcomes of ELL programs? Drawing conclusions about the effectiveness of ELL programs is difficult because of variations across programs in the number of years they are in effect, type of instruction, quality of schooling other than ELL

instruction, teachers, children, and other factors. Further, no effective experiments have been conducted that compare bilingual education with English-only education in the United States (Snow & Kang, 2006). Some experts have concluded that the quality of instruction is more important in determining outcomes than the language in which it is delivered (Lesaux & Siegel, 2003).

Nonetheless, other experts, such as Kenji Hakuta (2001, 2005), support the combined home language and English approach because (1) children have difficulty learning a subject when it is taught in a language they do not understand; and (2) when both languages are integrated in the classroom, children learn the second language more readily and participate more actively. In support of Hakuta's view, most large-scale studies have found that the academic achievement of ELLs is higher in dual-language programs than English-only programs (Genesee & Lindholm-Leary, 2012).



A first- and second-grade bilingual English-Cantonese teacher instructing students in Chinese in Oakland, California. What have researchers found about the effectiveness of bilingual education?

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Summary

Physical Changes and Health

- The period of middle and late childhood involves slow, consistent growth.
- Changes in the brain in middle and late childhood include advances in functioning in the prefrontal cortex, which is associated with an increase in cognitive control.
- Motor development becomes much smoother and more coordinated. Boys usually are better at gross motor skills, girls at fine motor skills.
- Most U.S. children do not get nearly enough exercise.
- For the most part, middle and late childhood is a time of excellent health. However, being overweight in childhood poses serious health risks. Cancer is the second leading cause of death in children (after accidents).

Children with Disabilities

- Approximately 13 percent of U.S. children from 3 to 21 years of age receive special education or related services. Approximately 80 percent of children with a learning disability have a reading problem. The number of children diagnosed with ADHD has been increasing. Autism spectrum disorders recently have been estimated to characterize 1 in 88 U.S. children.
- U.S. legislation requires that all children with disabilities be given a free, appropriate public education. Increasingly, this education has involved full inclusion.

Cognitive Changes

- Piaget theorized that the stage of concrete operational thought characterizes children from about 7 to 11 years

of age. During this stage children are capable of concrete operations, conservation, classification, seriation, and transitivity. Criticisms of Piaget's theory have been proposed.

- Changes in these aspects of information occur in middle and late childhood: attention, memory, critical thinking, creative thinking, metacognition, and executive function.
- Widely used intelligence tests today include the Stanford-Binet test and Wechsler scales. Sternberg proposed that intelligence comes in three main forms, whereas Gardner said there are eight types of intelligence. Intelligence is influenced by heredity and environment. Extremes of intelligence include intellectual disability and giftedness.

Language Development

- In the elementary school years, improvements in children's language development include vocabulary, grammar, and metalinguistic awareness.
- Both the phonics and whole-language approaches to reading instruction can benefit children, but experts increasingly view phonics instruction as critical in learning to read.
- Recent research indicates a complex conclusion about whether there are sensitive periods in learning a second language. Bilingual education in the United States aims to teach academic subjects to immigrant children in their native language while gradually adding English instruction.

Key Terms

attention deficit hyperactivity disorder (ADHD)

autism spectrum disorders (ASD)

convergent thinking

creative thinking

critical thinking

cultural-familial intellectual disability

culture-fair tests

divergent thinking

long-term memory

working memory

elaboration

fuzzy trace theory

gifted

inclusion

individualized education plan (IEP)

intellectual disability

intelligence

intelligence quotient (IQ)

learning disability

least restrictive environment (LRE)

long-term memory

mental age (MA)

metacognition

metalinguistic awareness

neo-Piagetians

normal distribution

organic intellectual disability

phonics approach

seriation

strategies

thinking

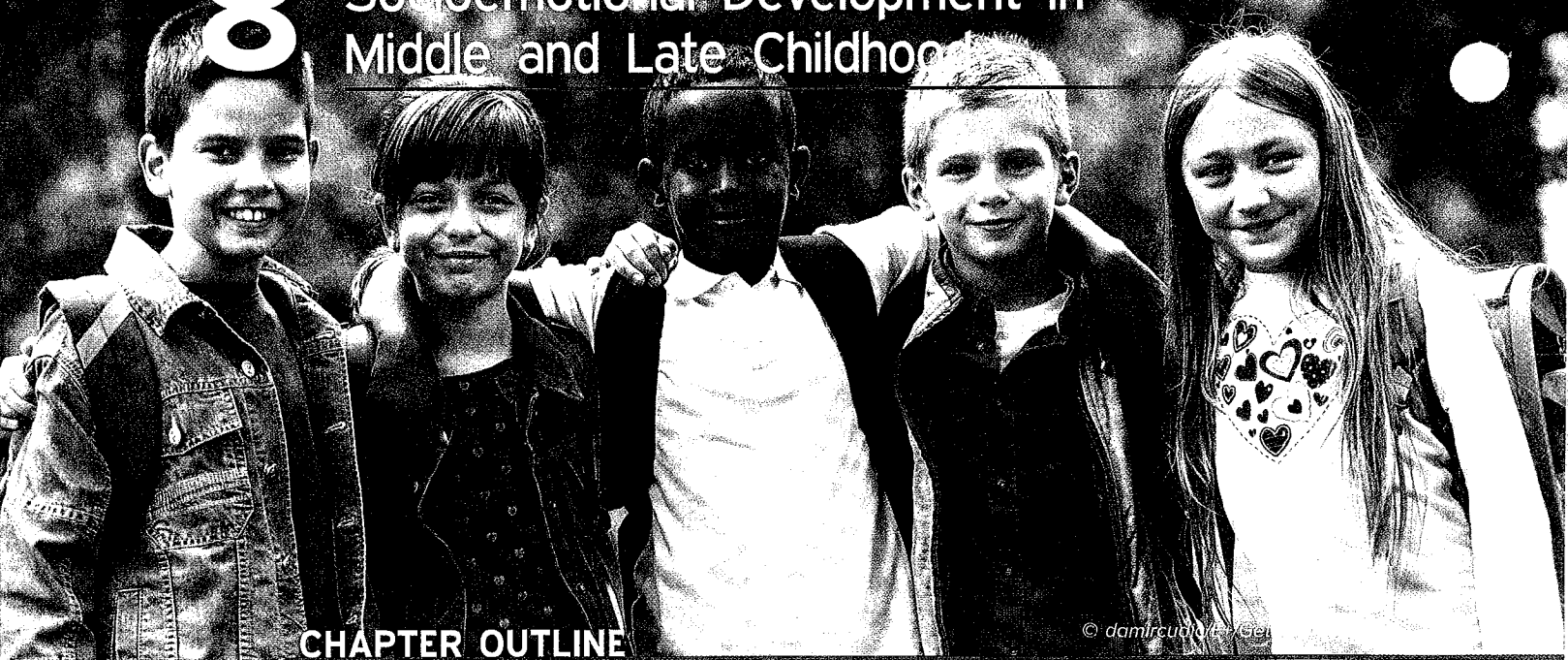
transitivity

triarchic theory of intelligence

whole-language approach

8

Socioemotional Development in Middle and Late Childhood



CHAPTER OUTLINE

EMOTIONAL AND PERSONALITY DEVELOPMENT

The Self
Emotional Development
Moral Development
Gender

FAMILIES

Developmental Changes in Parent-Child Relationships

Parents as Managers
Attachment
Stepfamilies

PEERS

Developmental Changes
Peer Status
Social Cognition
Bullying
Friends

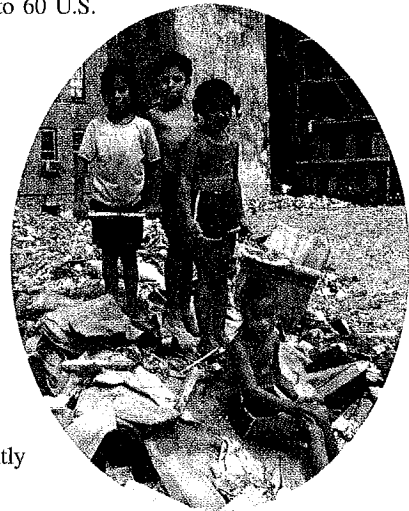
SCHOOLS

Contemporary Approaches to Student Learning
Socioeconomic Status, Ethnicity, and Culture

Stories of Life-Span Development: Learning in Troubled Schools

In *The Shame of the Nation*, Jonathan Kozol (2005) described his visits to 60 U.S. schools in urban low-income areas in 11 states. He saw many schools in which the minority population was 80 to 90 percent. Kozol observed numerous inequities—unkempt classrooms, hallways, and restrooms; inadequate textbooks and supplies; and lack of resources. He also saw teachers mainly instructing students to memorize material by rote, especially as preparation for mandated tests, rather than stimulating them to engage in higher-level thinking. Kozol also frequently observed teachers using threatening disciplinary tactics to control the classroom.

However, some teachers Kozol observed were effective in educating children in these undesirable conditions. At P.S. 30 in the South Bronx, Mr. Bedrock teaches fifth grade. One student in his class, Serafina, recently lost her mother to AIDS. When Kozol visited the class, he was told that two other children had taken the role of “allies in the child’s struggle for emotional survival” (Kozol, 2005, p. 291). Textbooks are in short supply for the class, and the social studies text is so out of



What are some of the challenges faced by children growing up in the South Bronx?

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date it claims that Ronald Reagan is the country's president. But Mr. Bedrock told Kozol that it's a "wonderful" class this year. About their teacher, 56-year-old Mr. Bedrock, one student said, "He's getting old . . . but we love him anyway" (p. 292). Kozol found the students orderly, interested, and engaged.

The years of middle and late childhood bring many changes to children's social and emotional lives. The development of their self-conceptions, moral reasoning, and gendered behavior is significant. Transformations in their relationships with parents and peers occur, and schooling takes on a more academic flavor. ■

Emotional and Personality Development

In this section, we explore how the self continues to develop during middle and late childhood and the emotional changes that take place during these years. We also discuss children's moral development and many aspects of the role that gender plays in their development in middle and late childhood.

The Self

What is the nature of the child's self-understanding, understanding of others, and self-esteem during the elementary school years? What roles do self-efficacy and self-regulation play in children's achievement?

The Development of Self-Understanding

In middle and late childhood, especially from 8 to 11 years of age, children increasingly describe themselves with psychological characteristics and traits rather than the more concrete self-descriptions of younger children. Older children are more likely to describe themselves as "*popular, nice, helpful, mean, smart, and dumb*" (Harter, 2006, p. 526).

In addition, during the elementary school years, children become more likely to recognize social aspects of the self (Harter, 2012, 2013, 2016). They include references to social groups in their self-descriptions, such as referring to themselves as a Girl Scout, a Catholic, or someone who has two close friends (Livesly & Bromley, 1973).

Children's self-understanding in the elementary school years also includes increasing reference to social comparison (Harter, 2012, 2013, 2016). At this point in development, children are more likely to distinguish themselves from others in comparative rather than in absolute terms. That is, elementary-school-age children are no longer as likely to think about what they do or do not do, but are more likely to think about what they can do in comparison with others.

Consider a series of studies in which Diane Ruble (1983) investigated children's use of social comparison in their self-evaluations. Children were given a difficult task and then offered feedback on their performance as well as information about the performances of other children their age. The children were then asked for self-evaluations. Children younger than 7 made virtually no reference to the information about other children's per-

formances. However, many children older than 7 included socially comparative information in their self-descriptions.



How Would You...?

As a **psychologist**, how would you explain the role of social comparison for the development of a child's sense of self?

Understanding Others

Earlier we described the advances and limitations of young children's social understanding. In middle and late childhood, **perspective taking**, the social cognitive process involved in assuming the perspective of others and understanding their thoughts and feelings, improves. Executive function is at work in perspective taking. Among the executive functions called on when

perspective taking The social cognitive process involved in assuming the perspective of others and understanding their thoughts and feelings.

children engage in perspective taking are cognitive inhibition (controlling one's own thoughts to consider the perspective of others) and cognitive flexibility (seeing situations in different ways).

In middle and late childhood, children also become more skeptical of others' claims (Heyman, Fu, & Lee, 2013). They become increasingly skeptical of some sources of information about psychological traits. A recent study of 6- to 9-year-olds revealed that older children were less trusting and more skeptical of others' distorted claims than were younger children (Mills & Elashi, 2014).



What are some changes in children's understanding of others in middle and late childhood?

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Self-Esteem and Self-Concept

High self-esteem and a positive self-concept are important characteristics of children's well-being (Marsh, Martin, & Xu, 2012). Investigators sometimes use the terms *self-esteem* and *self-concept* interchangeably or do not precisely define them, but there is a meaningful difference between them (Harter, 2013, 2016). **Self-esteem** refers to global evaluations of the self; it is also called *self-worth* or *self-image*. For example, a child may perceive that she is not merely a person but a *good* person. **Self-concept** refers to domain-specific evaluations of the self. Children can make self-evaluations in many domains of their lives—academic, athletic, appearance, and so on. In sum, *self-esteem* refers to global self-evaluations, *self-concept* to domain-specific evaluations.

The foundations of self-esteem and self-concept emerge from the quality of parent-child interaction in infancy and early childhood. Thus, if children have low self-esteem in middle and late childhood, they may have experienced neglect or abuse in relationships with their parents earlier in development. Children with high self-esteem are more likely to be securely attached to their parents and have parents who engage in sensitive caregiving (Thompson, 2015, 2016).

Self-esteem reflects perceptions that do not always match reality (Miller & others, 2015). A child's self-esteem might reflect a belief about whether he or she is intelligent and attractive, for example, but that belief is not necessarily accurate. Thus, high self-esteem may refer to accurate, justified perceptions of one's worth as a person and one's successes and accomplishments, but it can also refer to an arrogant, grandiose, unwarranted sense of superiority over others (Lavner & others, 2016). In the same manner, low self-esteem may reflect either an accurate perception of one's shortcomings or a distorted, even pathological insecurity and inferiority.

Variations in self-esteem have been linked with many aspects of children's development. However, much of the research is *correlational* rather than *experimental*. Recall that correlation does not equal causation. Thus, if a correlational study finds an association between children's low self-esteem and low academic achievement, low academic achievement could cause the low self-esteem as much as low self-esteem could cause low academic achievement. A recent longitudinal study explored whether self-esteem is a cause or consequence of social support in youth (Marshall & others, 2014). In this study, self-esteem predicted subsequent changes in social support but social support did not predict subsequent changes in self-esteem.

What are the consequences of low self-esteem? Low self-esteem has been implicated in overweight and obesity, anxiety, depression, suicide, drug use, and delinquency (Blanco & others, 2014; Hill, 2016; Orth & others, 2016; Park & Park, 2015; Rieger & others, 2016; Sanders & others, 2015). One study revealed that youth with low self-esteem had lower life satisfaction at 30 years of age (Birkeland & others,

2012). Another recent study found that low and decreasing self-esteem in adolescence was linked to adult depression two decades later (Steiger & others, 2014).

Researchers have found only moderate correlations between school performance and self-esteem, and these correlations do not suggest that high self-esteem produces better school performance (Baumeister, 2013).

self-esteem The global evaluative dimension of the self. Self-esteem is also referred to as self-worth or self-image.

self-concept Domain-specific evaluations of the self.



How Would You...?

As an educator, how would you work with children to improve their self-esteem in relation to their academic ability?

In fact, efforts to increase students' self-esteem have not always led to improved school performance (Davies & Brember, 1999).

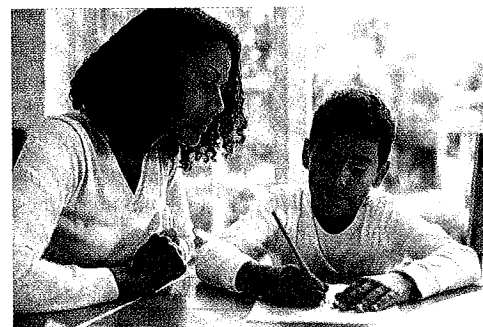
Children with high self-esteem have greater initiative, but this can produce positive or negative outcomes. For example, children with high self-esteem are prone to both prosocial and antisocial actions (Krueger, Vohs, & Baumeister, 2008).

In addition, a current concern is that too many of today's children grow up receiving praise for mediocre or even poor performance and as a consequence have inflated self-esteem (Stipek, 2005). They may have difficulty handling competition and criticism. This theme is vividly captured by the title of a book, *Dumbing Down Our Kids: Why American Children Feel Good About Themselves But Can't Read, Write, or Add* (Sykes, 1995). In a series of studies, researchers found that inflated praise, although well intended, may cause children with low self-esteem to avoid important learning experiences such as tackling challenging tasks (Brummelman & others, 2014). And a recent study found that narcissistic parents especially overvalue their children's talents (Brummelman & others, 2015).

Increasing Children's Self-Esteem

Teachers, social workers, health-care professionals, and others are often concerned about low self-esteem in the children they serve. Researchers have suggested several strategies to improve self-esteem in at-risk children (Bednar, Wells, & Peterson, 1995; Harter, 2006, 2012, 2016).

- *Identify the causes of low self-esteem.* Intervention should target the causes of low self-esteem. Children have the highest self-esteem when they perform competently in domains that are important to them. Therefore, it is helpful to encourage children to identify and value their areas of competence, such as academic skills, athletic skills, physical attractiveness, and social acceptance.
- *Provide emotional support and social approval.* Some children with low self-esteem come from conflictual families or conditions of abuse or neglect—situations in which emotional support is unavailable. In some cases, alternative sources of support can be arranged either informally through the encouragement of a teacher, a coach, or another significant adult, or more formally through programs such as Big Brothers and Big Sisters.
- *Help children achieve.* Achievement also can improve children's self-esteem. For example, the straightforward teaching of real skills to children often results in increased achievement and thus in enhanced self-esteem. Children develop higher self-esteem when they know which tasks will achieve their goals and when they have successfully performed them or similar tasks.
- *Help children cope.* Self-esteem can be built when a child faces a problem and tries to cope with it, rather than avoiding it. If coping rather than avoidance prevails, children often face problems realistically, honestly, and nondefensively. This produces favorable self-evaluative thoughts, which lead to the self-generated approval that raises self-esteem.



How can parents help children develop higher self-esteem?

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Self-Efficacy

Self-efficacy is the belief that one can master a situation and produce favorable outcomes. Albert Bandura (2001, 2006, 2010, 2012, 2016), whose social cognitive theory

self-efficacy The belief that one can master a situation and produce favorable outcomes.

was described earlier, states that self-efficacy is a critical factor in whether or not students achieve. Self-efficacy is the belief that "I can"; helplessness is the belief that "I cannot." Students with high self-efficacy



How Would You...?

As an **educator**, how would you encourage enhanced self-efficacy in a student who says, “I can’t do this work”?

endorse such statements as “I know that I will be able to learn the material in this class” and “I expect to be able to do well at this activity.”

Dale Schunk (2008, 2012, 2016) has applied the concept of self-efficacy to many aspects of students’ achievement. In his view, self-efficacy influences a student’s

choice of activities. Students with low self-efficacy for learning may avoid many learning tasks, especially those that are challenging. By contrast, children with high self-efficacy eagerly work at learning tasks (Schunk, 2012, 2016). Students with high self-efficacy are more likely to expend effort and persist longer at a learning task than students with low self-efficacy.

Self-Regulation

One of the most important aspects of the self in middle and late childhood is the increased capacity for self-regulation (Blair, 2016; Eisenberg, Smith, & Spinrad, 2016; Muller & Kerns, 2015; Wang & Cai, 2016). This increased capacity is characterized by deliberate efforts to manage one’s behavior, emotions, and thoughts that lead to increased social competence and achievement (Blair, Raver, & Finegood, 2016; Eisenberg, Spinrad, & Valiente, 2016; Schunk, 2016). In a recent study, higher levels of self-control assessed at 4 years of age were linked to improvements in the math and reading achievement of early elementary school children living in predominantly rural and low-income contexts (Blair & others, 2015). Also, study of almost 17,000 3- to 7-year-old children revealed that self-regulation was a protective factor for children growing up in low-socioeconomic-status (SES) conditions (Flouri, Midouhas, & Joshi, 2014).

The increased capacity for self-regulation is linked to developmental advances in the brain’s prefrontal cortex, which was discussed in the chapter on physical and cognitive development in middle and late childhood (Wendelken & others, 2016). In that discussion, increased focal activation in the prefrontal cortex was linked to improved cognitive control. Such cognitive control includes self-regulation.

Industry Versus Inferiority

Earlier we described Erik Erikson’s (1968) eight stages of human development. His fourth stage, industry versus inferiority, appears during middle and late childhood. The term *industry* expresses a dominant theme of this period: Children become interested in how things are made and how they work. When children are encouraged in their efforts to make, build, and work—whether building a model airplane, constructing a tree house, fixing a bicycle, solving an addition problem, or cooking—their sense of industry increases. Conversely, parents who see their children’s efforts at making things as “mischievous” or “making a mess” will tend to foster a sense of inferiority in their children.

Emotional Development

Preschoolers become more adept at talking about their own and others’ emotions. They also show a growing awareness of the need to control and manage their emotions to meet social standards. In middle and late childhood, children further develop their understanding and self-regulation of emotion (Calkins & Perry, 2016).

Developmental Changes

Developmental changes in emotions during middle and late childhood include the following (Denham, Bassett, & Wyatt, 2015; Goodvin, Thompson, & Winer, 2015; Kuebli, 1994):

- *Improved emotional understanding.* Children in elementary school develop an increased ability to understand such complex emotions as pride and shame. These emotions become less tied to the reactions of other people; they become more self-generated and integrated with a sense of personal responsibility. Also, during middle and late childhood as part of their understanding of emotions, children can engage in “mental

time travel,” in which they anticipate and recall the cognitive and emotional aspects of events (Lagattuta, 2014a, b; Lagattuta & others, 2015).

- *Increased understanding that more than one emotion can be experienced in a particular situation.* A third-grader, for example, may realize that achieving something might involve both anxiety and joy.
- *Increased tendency to be aware of the events leading to emotional reactions.* A fourth-grader may become aware that her sadness today is influenced by her friend moving to another town last week.
- *Ability to suppress or conceal negative emotional reactions.* A fifth-grader has learned to tone down his anger better than he used to when one of his classmates irritates him.
- *The use of self-initiated strategies for redirecting feelings.* In the elementary school years, children become more reflective about their emotional lives and increasingly use strategies to control their emotions. They become more effective at cognitively managing their emotions, such as soothing themselves after an upset.
- *A capacity for genuine empathy.* A fourth-grader, for example, feels sympathy for a distressed person and experiences vicariously the sadness the distressed person is feeling.

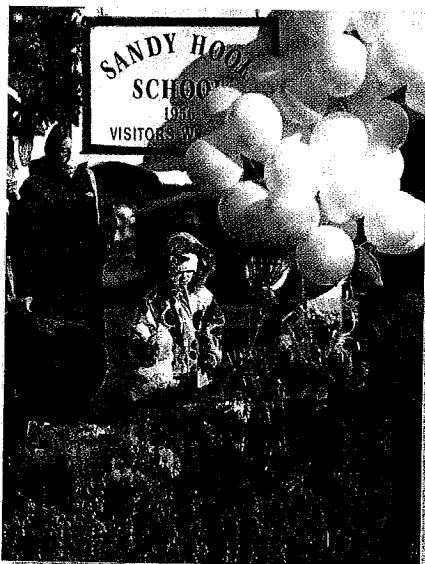
Coping with Stress

An important aspect of children’s emotional lives is learning how to cope with stress. As children get older, they more accurately appraise a stressful situation and determine how much control they have over it (Brenner, 2016; Lieberman & Chu, 2016; Masten, 2015). Older children generate more coping alternatives to stressful conditions and use more cognitive coping strategies (Saarni & others, 2006). They are better than younger children at intentionally shifting their thoughts to something that is less stressful; and at reframing, or changing their perception of a stressful situation. For example, a younger child may be very disappointed that a teacher did not say hello when the child arrived in the classroom. An older child may reframe the situation and think, “My teacher may have been busy with other things and just forgot to say hello.”

By 10 years of age, most children are able to use cognitive strategies to cope with stress (Saarni, 1999). However, in families that have not been supportive and are characterized by turmoil or trauma, children may be so overwhelmed by stress that they do not use such strategies (Klingman, 2006).

Disasters, such as the bombing of the World Trade Center in New York City in September 2001 or Hurricane Sandy in 2012, can especially harm children’s development and produce adjustment problems (Scheeringa, Cobham, & McDermott, 2014). Among the outcomes for children who experience disasters are acute stress reactions, depression, panic disorder, and post-traumatic stress disorder (Pfefferbaum, Newman, & Nelson, 2014). The likelihood that a child will face these problems following a disaster depends on factors such as the nature and severity of the disaster and the type of support available to the child (Masten & others, 2015). Also, children who have developed a number of coping techniques have the best chance of adapting and functioning competently in the face of disasters and trauma (Ungar, 2015).

In research on disasters and trauma, the term *dose-response effects* is often used. A widely supported finding in this research area is that the more severe the disaster or trauma (dose), the worse the adaptation and adjustment (response) following the event (Masten, 2015).



Children grieve at a memorial near the Sandy Hook Elementary School in Newtown, Connecticut, following the shooting in December 2012 that left 26 people dead, 20 of them young children. *What are some effective strategies that adults can use to help children cope with traumatic events?*

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Researchers have offered some recommendations for parents, teachers, and other adults caring for children after a disaster (Gurwitch & others, 2001):

- Reassure children (numerous times, if necessary) of their safety and security.
- Allow children to retell events and be patient in listening to them.
- Encourage children to talk about any disturbing or confusing feelings, reassuring them that such feelings are normal after a stressful event.
- Protect children from re-exposure to frightening situations and reminders of the trauma—for example, by limiting discussion of the event in front of the children.
- Help children make sense of what happened, keeping in mind that children may misunderstand what took place. For example, young children “may blame themselves, believe things happened that did not happen, believe that terrorists are in the school, etc. Gently help children develop a realistic understanding of the event” (p. 10).

How Would You...?

As a **social worker**, how would you counsel a child who has been exposed to a traumatic event?



Moral Development

Recall that Piaget proposed that younger children are characterized by heteronomous morality but that by 10 years of age they have moved into a higher stage called autonomous morality. According to Piaget, older children consider the intentions of the individual, believe that rules are subject to change, and are aware that punishment does not always follow wrongdoing.

A second major perspective on moral development was proposed by Lawrence Kohlberg (1958, 1986). Piaget’s cognitive stages of development serve as the underpinnings for Kohlberg’s theory, but Kohlberg proposed six stages of moral development, which he believed are universal. Development from one stage to another, said Kohlberg, is fostered by opportunities to take the perspective of others and to experience conflict between one’s current stage of moral thinking and the reasoning of someone at a higher stage.

The Kohlberg Stages

Kohlberg’s stages fall into three levels of moral thinking, each of which is characterized by two stages (see Figure 1).

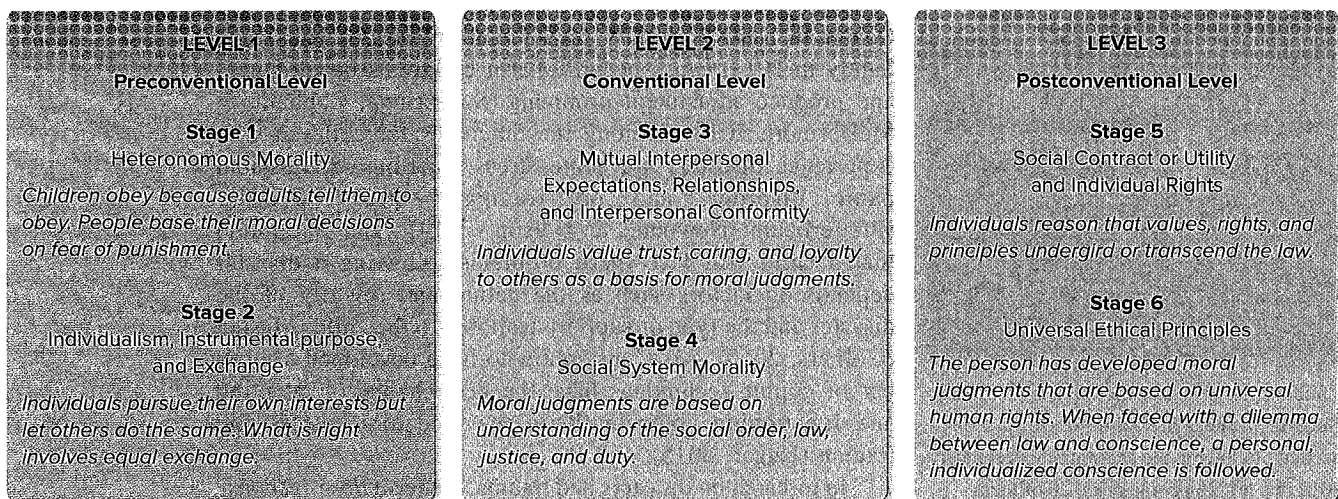


Figure 1 Kohlberg’s Three Levels and Six Stages of Moral Development

Kohlberg argued that people everywhere develop their moral reasoning by passing through these age-based stages. *Where does Kohlberg’s theory stand on the nature-nurture and continuity-discontinuity issues?*

Preconventional reasoning is Kohlberg's lowest level of moral reasoning. At this level, children interpret good and bad in terms of external rewards and punishments.

- **Stage 1. Heteronomous morality** is the first stage in preconventional reasoning. At this stage, moral thinking is tied to punishment. For example, children think that they must obey because they fear punishment for disobedience.
- **Stage 2. Individualism, instrumental purpose, and exchange** is the second stage of preconventional reasoning. At this stage, children reason that pursuing their own interests is the right thing to do, but they let others do the same. Thus, they think that what is right involves an equal exchange. They reason that if they are nice to others, others will be nice to them in return.

Conventional reasoning is the second, or intermediate, level in Kohlberg's theory of moral development. At this level, individuals apply certain standards, but they are the standards set by others, such as parents or the government.

- **Stage 3. Mutual interpersonal expectations, relationships, and interpersonal conformity** is Kohlberg's third stage of moral development. At this stage, individuals value trust, caring, and loyalty to others as a basis of moral judgments. Children and adolescents often adopt their parents' moral standards at this stage, seeking parental approval as a "good girl" or a "good boy."
- **Stage 4. Social systems morality** is the fourth stage in Kohlberg's theory of moral development. At this stage, moral judgments are based on understanding the social order, law, justice, and duty. For example, adolescents may reason that in order for a community to work effectively, it needs to be protected by laws that community members obey.

Postconventional reasoning is the highest level in Kohlberg's theory of moral development. At this level, the individual recognizes alternative moral courses, explores the options, and then decides on a personal moral code.

- **Stage 5. Social contract or utility and individual rights** is the fifth Kohlberg stage. At this stage, individuals reason that values, rights, and principles undergird or transcend the law. A person evaluates the validity of actual laws and may examine social systems in terms of the degree to which they preserve and protect fundamental human rights and values.
- **Stage 6. Universal ethical principles** is the sixth and highest stage in Kohlberg's theory of moral development. At this stage, the person has developed a moral standard based on universal human rights. When faced with a conflict between law and conscience, the person reasons that conscience should be followed, even though the decision might bring risk.

Kohlberg believed that these levels and stages occur in a sequence and are age related: Before age 9, most children use level 1, preconventional reasoning based on external rewards and punishments. By early adolescence, moral reasoning is increasingly based on level 2, the application of standards set by others. Most adolescents reason at the higher part of level 2 (stage 3), with some signs of stages 2 and 4. Not everyone progresses beyond level 2, even in adulthood, but by early adulthood a small number of individuals reason in postconventional ways (level 3).

What evidence supports this description of development? A 20-year longitudinal investigation found that use of stages 1 and 2 decreased with age (Colby & others, 1983) (see Figure 2). Stage 4, which did not appear at all in the moral reasoning of 10-year-olds, was reflected in the moral thinking of 62 percent of the 36-year-olds. Stage 5 did not appear in any individuals until age 20 to 22, and even later in adulthood it never

preconventional reasoning The lowest level in Kohlberg's theory of moral development. The individual's moral reasoning is controlled primarily by external rewards and punishment.

heteronomous morality Kohlberg's first stage in preconventional reasoning, in which moral thinking is tied to punishment.

individualism, instrumental purpose, and exchange The second Kohlberg stage of moral development. At this stage, individuals pursue their own interests but also let others do the same.

conventional reasoning The second, or intermediate, level in Kohlberg's theory of moral development. At this level, individuals abide by certain standards, but they are the standards of others, such as parents or the laws of society.

mutual interpersonal expectations, relationships, and interpersonal conformity Kohlberg's third stage of moral development. At this stage, individuals value trust, caring, and loyalty to others as a basis of moral judgments.

social systems morality The fourth stage in Kohlberg's theory of moral development. Moral judgments are based on understanding the social order, law, justice, and duty.

postconventional reasoning The highest level in Kohlberg's theory of moral development. At this level, the individual recognizes alternative moral courses, explores the options, and then decides on a personal moral code.

social contract or utility and individual rights The fifth Kohlberg stage. At this stage, individuals reason that values, rights, and principles undergird or transcend the law.

universal ethical principles The sixth and highest stage in Kohlberg's theory of moral development. Individuals develop a moral standard based on universal human rights.

characterized more than 10 percent of the individuals. Thus, this research found that the moral stages appeared somewhat later than Kohlberg initially envisioned, and reasoning at the higher stages, especially stage 6, was rare.

Influences on the Kohlberg Stages

What factors influence movement through Kohlberg's stages? Although moral reasoning at each stage presupposes a certain level of cognitive development, Kohlberg argued that advances in children's cognitive development did not ensure development of moral reasoning. Instead, moral reasoning also reflects children's experiences in dealing with moral questions and moral conflict.

Several investigators have tried to advance individuals' levels of moral development by having a model present arguments that reflect moral thinking one stage above the individuals' established levels. This approach applies Vygotsky's principle of scaffolding; it also applies the concepts of equilibrium and conflict that Piaget used to explain cognitive development. By presenting arguments slightly beyond the children's level of moral reasoning, the researchers created a disequilibrium that motivated the children to restructure their moral thought. The upshot of studies using this approach is that virtually any discussion about the adolescent's current stage seems to promote more advanced moral reasoning (Walker, 1982).

Kohlberg believed that peer interaction is a critical part of the social stimulation that challenges children to change their moral reasoning. Whereas adults characteristically impose rules and regulations on children, the give-and-take among peers gives children an opportunity to take the perspective of another person and to generate rules democratically. Kohlberg stressed that encounters with peers can produce perspective-taking opportunities that may advance a child's moral reasoning.

Kohlberg's Critics

Kohlberg's theory has provoked debate, research, and criticism (Killen & Smetana, 2015; Narváez, 2015, 2016a, b, c; Turiel, 2015). Key criticisms involve the link between moral thought and moral behavior, whether moral reasoning is conscious/deliberative or unconscious/automatic, the roles of culture and the family in moral development, and the significance of concern for others.

Moral Thought and Moral Behavior Kohlberg's theory has been criticized for placing too much emphasis on moral thought and not enough emphasis on moral behavior (Walker, 2004). Moral reasons can sometimes be used as a shelter for immoral behavior (Bandura, 2016). Corrupt CEOs and politicians have usually endorsed the loftiest of moral virtues in public before their own immoral behavior is exposed. Whatever the type of public scandal, you will probably find that the culprits expressed virtuous thoughts but engaged in immoral behavior. No one wants a nation of cheaters and thieves who can reason at the postconventional level and who may know what is right yet still do what is wrong.

Conscious/Deliberate Versus Unconscious/Automatic Social psychologist Jonathan Haidt (2006, 2013) argues that a major flaw in Kohlberg's theory is his view that moral thinking is deliberative and that individuals go around all the time contemplating and reasoning about morality. Haidt believes that moral thinking is more often an

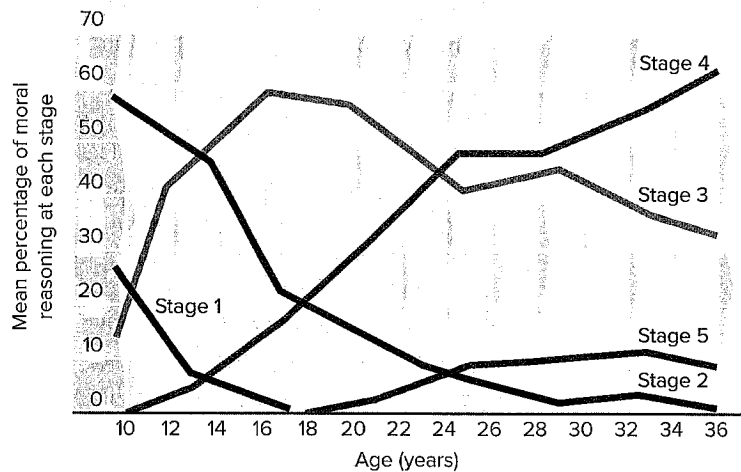


Figure 2 Age and the Percentage of Individuals at Each Kohlberg Stage

In one longitudinal study of males from 10 to 36 years of age, at age 10 most moral reasoning was at stage 2 (Colby & others, 1983). At 16 to 18 years of age, stage 3 became the most frequent type of moral reasoning, and it was not until the mid-twenties that stage 4 became the most frequent. Stage 5 did not appear until 20 to 22 years of age, and it never characterized more than 10 percent of the individuals. In this study, the moral stages appeared somewhat later than Kohlberg envisioned and stage 6 was absent. *Do you think it matters that all of the participants in this study were males? Why or why not?*

intuitive gut reaction, with deliberative moral reasoning serving as an after-the-fact justification. Thus, in his view, much of morality begins with rapid evaluative judgments of others rather than with strategic reasoning about moral circumstances.

Culture and Moral Reasoning Kohlberg emphasized that his stages of moral reasoning are universal, but some critics claim his theory is culturally biased (Gibbs, 2014; Mrkva & Narváez, 2015). Both Kohlberg and his critics may be partially correct. One review of 45 studies in 27 cultures around the world, mostly non-European, provided support for the universality of Kohlberg's first four stages (Snarey, 1987). Individuals in diverse cultures developed through these four stages in sequence as Kohlberg predicted. Stages 5 and 6, however, have not been found in all cultures (Gibbs & others, 2007; Snarey, 1987). Furthermore, Kohlberg's scoring system does not recognize the higher-level moral reasoning of certain cultures and thus does not acknowledge that moral reasoning is more culture-specific than Kohlberg envisioned (Snarey, 1987). In sum, although Kohlberg's approach does capture much of the moral reasoning used in various cultures around the world, his approach misses or misconstrues some important moral concepts in particular cultures (Gibbs, 2014).

Families and Moral Development Kohlberg argued that family processes are essentially unimportant in children's moral development. As noted earlier, he argued that parent-child relationships usually provide children with little opportunity for give-and-take or perspective taking. Rather, Kohlberg said that such opportunities are more likely to be provided by children's peer relations.

Did Kohlberg underestimate the contribution of family relationships to moral development? Most experts on children's moral development conclude that parents' moral values and actions influence children's development of moral thoughts (Eisenberg, Spinrad, & Knafo-Noam, 2015; Grusec & others, 2014). Nonetheless, most developmentalists agree with Kohlberg and Piaget that peers play an important role in the development of moral reasoning.

Gender and the Care Perspective The most publicized criticism of Kohlberg's theory has come from Carol Gilligan (1982, 1996), who argues that Kohlberg's theory reflects a gender bias. According to Gilligan, Kohlberg's theory is based on a male norm that puts abstract principles above relationships and concern for others and sees the individual as standing alone and independently making moral decisions. It puts justice at the heart of morality. In contrast with Kohlberg's **justice perspective**, Gilligan argues for a **care perspective**, which is a moral perspective that views people in terms of their connectedness with others and emphasizes interpersonal communication, relationships with others, and concern for others. According to Gilligan, Kohlberg greatly underplayed the care perspective, perhaps because he was a male, because most of his research was with males rather than females, and because he used male responses as a model for his theory.

However, questions have been raised about Gilligan's gender conclusions (Walker & Frimer, 2011). For example, a meta-analysis casts doubt on Gilligan's claim of substantial gender differences in moral judgment (Jaffee & Hyde, 2000). And a review concluded that girls' moral orientations are "somewhat more likely to focus on care for others than on abstract principles of justice, but they can use both moral orientations when needed (as can boys . . .)" (Blakemore, Berenbaum, & Liben, 2009, p. 132).

Domain Theory: Moral, Social Conventional, Personal Reasoning

The **domain theory of moral development** states that there are different domains of social knowledge and reasoning, including moral, social conventional, and personal domains. In domain theory,

justice perspective A moral perspective that focuses on the rights of the individual; individuals independently make moral decisions.

care perspective The moral perspective of Carol Gilligan, which views people in terms of their connectedness with others and emphasizes interpersonal communication, relationships with others, and concern for others.

domain theory of moral development Theory that identifies different domains of social knowledge and reasoning, including moral, social conventional, and personal domains. These domains arise from children's and adolescents' attempts to understand and deal with different forms of social experience.

children's and adolescents' moral, social conventional, and personal knowledge and reasoning emerge from their attempts to understand and deal with different forms of social experience (Killen & Smetana, 2015; Turiel, 2015).

social conventional reasoning Thoughts about social consensus and convention, in contrast with moral reasoning, which stresses ethical issues.

Social conventional reasoning focuses on conventional rules that have been established by social consensus in order to control behavior and maintain the social system. The rules themselves are arbitrary, such as raising your hand in class before speaking, using one staircase at school to go up and the other to go down, not cutting in front of someone standing in line to buy movie tickets, and stopping at a stop sign when driving. There are sanctions if we violate these conventions, although the rules can be changed by consensus.

In contrast, moral reasoning focuses on ethical issues and rules of morality. Unlike conventional rules, moral rules are not arbitrary. They are obligatory, widely accepted, and somewhat impersonal (Turiel, 2015). Rules pertaining to lying, cheating, stealing, and physically harming another person are moral rules because violation of these rules affronts ethical standards that exist apart from social consensus and convention. Moral judgments involve concepts of justice, whereas social conventional judgments are concepts of social organization. Violating moral rules is usually more serious than violating conventional rules.

The social conventional approach is a serious challenge to Kohlberg's approach because Kohlberg argued that social conventions are a stop-over on the road to higher moral sophistication. For social conventional reasoning advocates, social conventional reasoning is not lower than postconventional reasoning but rather something that needs to be disentangled from the moral thread (Killen & Smetana, 2015).

Recently, a distinction also has been made between moral and conventional issues, which are viewed as legitimately subject to adult social regulation, and personal issues, which are more likely subject to the child's or adolescent's independent decision making and personal discretion (Killen & Smetana, 2015). Personal issues include control over one's body, privacy, and choice of friends and activities. Thus, some actions belong to a *personal* domain not governed by moral strictures or social norms.



How does children's sharing change from the preschool to the elementary school years?

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Prosocial Behavior

Whereas Kohlberg's and Gilligan's theories have focused primarily on the development of moral reasoning, the study of prosocial moral behavior has placed more emphasis on the behavioral aspects of moral development (Eisenberg & Spinrad, 2016; Eisenberg, Spinrad, & Knafo-Noam, 2015). Children engage in both immoral antisocial acts, such as lying and cheating, and prosocial moral behavior, such as showing empathy or helping others altruistically. Even during the preschool years, children may care for others or comfort someone in distress, but prosocial behavior is more prevalent in adolescence than in childhood (Eisenberg, Spinrad, & Knafo-Noam, 2015). Parents can be especially helpful in guiding children to engage in prosocial behavior (Laible & Karahuta, 2016).

Sharing is one aspect of prosocial behavior that researchers have studied. Children's sharing comes to reflect a more complex sense of what is just and right during middle and late childhood. By the start of the elementary school years, children begin to express objective ideas about fairness (Eisenberg, Fabes, & Spinrad, 2006). It is common to hear 6-year-old children use the word *fair* as synonymous with *equal* or *same*. By the middle to late elementary school years, children come to believe that equity can also mean that people with special merit or special needs deserve special treatment.

Gender

Gilligan's claim that Kohlberg's theory of moral development reflects gender bias reminds us of the pervasive influence of gender on development. Long before elementary school, boys and girls show preferences for different toys and activities. As we discussed in the chapter on socioemotional development in early childhood, preschool children display a gender identity and gender-typed behavior that reflects biological, cognitive, and social influences. Here we examine gender stereotypes, gender similarities and differences, and gender-role classification.

Gender Stereotypes

In the past, a well-adjusted boy was supposed to be independent, aggressive, and powerful. A well-adjusted girl was supposed to be dependent, nurturing, and uninterested in power. These notions reflect **gender stereotypes**, which are broad categories that reflect general impressions and beliefs about females and males.

Recent research has found that gender stereotypes are, to a great extent, still present in today's world, in the lives of both children and adults (Leaper, 2015; Liben, Bigler, & Hilliard, 2014). Gender stereotyping continues to change during middle and late childhood and adolescence (Blakemore, Berenbaum, & Liben, 2009). During the elementary school years, children have considerable knowledge about which activities are linked with being male or female. For example, a study of 6- to 10-year-olds revealed gender stereotyping in math—both boys and girls indicated math is for boys (Cvencek, Meltzoff, & Greenwald, 2011). Researchers also have found that boys' gender stereotypes are more rigid than girls' (Blakemore, Berenbaum, & Liben, 2009).

Gender Similarities and Differences

What is the reality behind gender stereotypes? Let's examine some of the similarities and differences between boys and girls, keeping in mind that (1) the differences are averages—not characteristics of all boys versus all girls; (2) even when differences are reported, there is considerable gender overlap; and (3) the differences may be due primarily to biological factors, sociocultural factors, or both. First, we examine physical similarities and differences, and then we turn to cognitive and socioemotional similarities and differences.

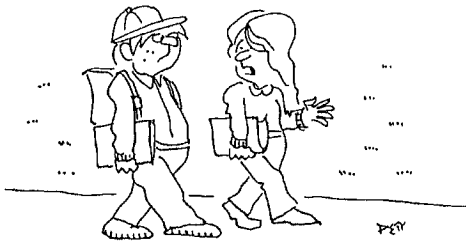
Physical Development Women have about twice the body fat of men, with most of it concentrated around the breasts and hips. In males, fat is more likely to go to the abdomen. On average, males grow to be 10 percent taller than females. Other physical differences are less obvious. From conception onward, females have a longer life expectancy than males, and females are less likely than males to develop physical or mental disorders. Males have twice the risk of coronary disease that females do.

Does gender matter when it comes to brain structure and function? Human brains are much alike, whether the brain belongs to a male or a female (Halpern & others, 2007). However, researchers have found some differences in the brains of males and females (Hofer & others, 2007). Female brains are approximately 10 percent smaller than male brains (Giedd, 2012). However, female brains have more folds; the larger number of folds (called convolutions) allows more surface brain tissue within the skulls of females than males (Luders & others, 2004). An area of the parietal lobe that functions in visuospatial skills is larger in males than females (Frederikse & others, 2000). And the areas of the brain involved in emotional expression show more metabolic activity in females than males (Gur & others, 1995).

Although some differences in brain structure and function have been found, many of these differences are small and research often is inconsistent regarding the differences. Also, when sex differences in the brain have been revealed, in many cases they have not been directly linked to psychological differences (Blakemore, Berenbaum, & Liben, 2009).

Although research on sex differences in the brain is still in its infancy, it is likely that there are far more similarities than differences

gender stereotypes Broad categories that reflect society's impressions and beliefs about females and males.



"So according to the stereotype, you can put two and two together, but I can read the handwriting on the wall."

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in the brains of females and males. A further point is worth noting: Anatomical sex differences in the brain may be due to the biological origins of these differences, behavioral experiences (which underscores the brain's continuing plasticity), or a combination of these factors.

Cognitive Development and Achievement No gender differences in general intelligence have been revealed, but gender differences have been found in some cognitive areas (Blakemore, Berenbaum, & Liben, 2009). Research has shown that in general girls and women have slightly better verbal skills than boys and men, although in some verbal skill areas the differences are substantial (Blakemore, Berenbaum, & Liben, 2009).

There is strong evidence that females outperform males in reading and writing. In national studies, girls have had higher reading achievement than have boys (National Assessment of Educational Progress, 2012). A recent international study in 65 countries found that girls had higher reading achievement than did boys in every country (Reilly, 2012). In this study, the gender difference in reading was stronger in countries with less gender equity and lower economic prosperity. In the United States, girls also have consistently outperformed boys in writing skills in the National Assessment of Educational Progress in fourth-, eighth-, and twelfth-grade assessments.

Are there gender differences in math? A very large-scale study of more than 7 million U.S. students in grades 2 through 11 revealed no differences in math scores for boys and girls (Hyde & others, 2008). And a recent meta-analysis found no gender differences in math scores for adolescents (Lindberg & others, 2010). A recent research review concluded that girls have more negative math attitudes and that parents' and teachers' expectancies for children's math competence are often gender-biased in favor of boys (Gunderson & others, 2012).

One area of math that has been examined for possible gender differences is visuospatial skills, which include being able to rotate objects mentally and determine what they would look like when rotated (Halpern, 2012). These types of skills are important in courses such as plane and solid geometry and geography. A research review revealed that boys have better visuospatial skills than girls (Halpern & others, 2007). For example, despite equal participation in the National Geography Bee, in most years all 10 finalists are boys (Liben, 1995). However, some experts argue that the gender difference in visuospatial skills is small (Hyde & Else-Quest, 2013).

Are there gender differences in school contexts and achievement? With regard to school achievement, girls earn better grades, complete high school at a higher rate, and are more likely to drop out of school than boys (Halpern, 2012). Males are more likely than females to be assigned to special/remedial education classes. Girls are more likely than boys to be engaged with academic material, be attentive in class, put forth more academic effort, and participate more in class (DeZolt & Hull, 2001).

Keep in mind that measures of achievement in school or scores on standardized tests may reflect many factors besides cognitive ability. For example, performance in school may in part reflect attempts to conform to gender roles or differences in motivation, self-regulation, or other socioemotional characteristics (Klug & others, 2016; Martin & others, 2016; Wentzel & Miele, 2016; Wigfield & others, 2015).

Might single-sex education be better for children than coed education? The argument for single-sex education is that it eliminates distraction from the other sex and reduces sexual harassment. Single-sex public education has increased dramatically in recent years. In 2002, only 12 public schools in the U.S. provided single-sex education; in the 2011–2012 school year, 116 public schools were single-sex (NASSPE, 2012).



What are some recent changes in single-sex education in the United States? What does research say about whether single-sex education is beneficial?

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The increase in single-sex education has especially been fueled by its inclusion in the No Child Left Behind legislation as a means of improving the educational experiences and academic achievement of low-income students of color. However, two recent research reviews concluded that there have been no documented benefits of single-sex education for low-income students of color (Goodkind, 2013; Halpern & others, 2011). They emphasize that among the many arguments against single-sex education, the strongest is its reduction in the opportunities for boys and girls to work together in a supervised, purposeful environment.

There has been a special call for single-sex public education for one group of adolescents—African American boys—because of their historically poor academic achievement and high dropout rate from school (Mitchell & Stewart, 2013). In 2010, Urban Prep Academy for Young Men became the first all-male, all African American public charter school. One hundred percent of its first graduates enrolled in college, despite the school's location in a section of Chicago where poverty, gangs, and crime predominate. Because so few public schools focus solely on educating African American boys, it is too early to tell whether this type of single-sex education can be effective across a wide range of participants.

Socioemotional Development Three areas of socioemotional development in which gender similarities and differences have been studied extensively are aggression, emotion, and prosocial behavior.

One of the most consistent gender differences is that boys are more physically aggressive than girls are (Leaper, 2015). The difference occurs in all cultures and appears very early in children's development. The physical aggression difference is especially pronounced when children are provoked. Both biological and environmental factors have been proposed to account for gender differences in aggression. Biological factors include heredity and hormones. Environmental factors include cultural expectations, adult and peer models, and social agents that reward aggression in boys and punish aggression in girls.

Although boys are consistently more physically aggressive than girls, might girls show as much or more verbal aggression, such as yelling, than boys? When verbal aggression is examined, gender differences often disappear; sometimes, though, verbal aggression is more pronounced in girls (Eagly & Steffen, 1986).

Recently, increased interest has been shown in *relational aggression*, which involves harming someone by manipulating a relationship (Blakely-McClure & Ostrov, 2016; Cooley & Fife, 2016; Busching & Krahe, 2015). Relational aggression includes such behaviors as trying to make others dislike a certain individual by spreading malicious rumors about the person (Orpinas, McNicholas, & Nahapetyan, 2015). Relational aggression increases in middle and late childhood (Dishion & Piehler, 2009). Mixed findings have characterized research on whether girls show more relational aggression than boys, but one consistency in findings is that relational aggression comprises a greater percentage of girls' overall aggression than it does for boys (Putallaz & others, 2007). One research review revealed that girls engage in more relational aggression than boys in adolescence but not in childhood (Smith, Rose, & Schwartz-Mette, 2010).

Gender differences occur in some aspects of emotion (Leaper, 2015). Females express emotion more than males do, are better than males at decoding emotion, smile more, cry more, and are happier. Males report experiencing and expressing more anger than females do (Kring, 2000). And a recent meta-analysis found that females are better than males at recognizing nonverbal displays of emotion (Thompson & Voyer, 2014). Males usually show less self-regulation of emotion than females do, and this low self-control can translate into behavioral problems. A recent meta-analysis found that overall gender differences in children's emotional expression were small, with girls showing more positive emotions (sympathy, for example) and more internalized emotions (sadness and anxiety, for example) (Chaplin & Aldao, 2013). In this analysis, the gender difference in positive emotions became more pronounced with age as girls more strongly expressed positive emotions than boys in middle and late childhood and in adolescence.

Are there gender differences in prosocial behavior? Across childhood and adolescence, females engage in more prosocial behavior than males do (Hastings, Miller, & Troxel, 2015). Females also view themselves as more empathic than males do (Eisenberg, Spinrad, & Knafo-Noam, 2015). There is a small difference between boys and girls in the extent to which they share, with girls sharing slightly more than boys. However, the greatest gender difference in prosocial behavior occurs with kind and considerate behavior, which females perform more often than males.

How Would You...?

As a **psychologist**, how would you discuss gender similarities and differences with a parent or teacher who is concerned about a child's academic progress and social skills?



Gender-Role Classification

Not long ago, it was accepted that boys should grow up to be masculine and girls to be feminine. In the 1970s, however, as both females and males became dissatisfied with the burdens imposed by their stereotypic roles, alternatives to femininity and masculinity were proposed. Instead of describing masculinity and femininity as a continuum in which more of one means less of the other, it was proposed that individuals could have both masculine and feminine traits.

This thinking led to the development of the concept of **androgyny**, the presence of positive masculine and feminine characteristics in the same person (Bem, 1977; Spence & Helmreich, 1978). The androgynous boy might be assertive (masculine) and nurturing (feminine). The androgynous girl might be powerful (masculine) and sensitive to others' feelings (feminine). Measures have been developed to assess androgyny, such as the Bem Sex Role Inventory (Bem, 1977).

Gender experts such as Sandra Bem argue that androgynous individuals are more flexible, competent, and mentally healthy than their masculine or feminine counterparts. To some degree, though, which gender-role classification is best depends on the context involved. For example, in close relationships, feminine and androgynous orientations might be more desirable. One study found that girls and individuals high in femininity showed a stronger interest in caring than did boys and individuals high in masculinity (Karniol, Grosz, & Schorr, 2003). However, masculine and androgynous orientations might be more desirable in traditional academic and work settings because of the achievement demands in these contexts.

Despite talk about the "sensitive male," William Pollack (1999) argues that little has been done to change traditional ways of raising boys. He says that the "boy code" tells boys that they should show little if any emotion and should act tough. Boys learn the boy code in many contexts—sandboxes, playgrounds, schoolrooms, camps, hang-outs. The result, according to Pollack, is a "national crisis of boyhood." Pollack and others suggest that boys would benefit from being socialized to express their anxieties and concerns and to better regulate their aggression.

Gender in Context

Both the concept of androgyny and stereotypes about gender describe people in terms of personality traits such as "aggressive" or "caring." However, which traits people display may vary with the situation (Leaper, 2015). Thus, the nature and extent of gender differences may depend on the context (Liben, Bigler, & Hilliard, 2014).

Consider helping behavior. The stereotype is that females are better than males at helping. But it depends on the situation. Females are more likely than males to volunteer their time to help children with personal problems and to engage in caregiving behavior. However, in situations where males feel a sense of competence and those that involve danger, males are more likely than females to help (Eagly & Crowley, 1986). For example, a male is more likely than a female to stop and help a person stranded by the roadside with a flat tire. Indeed, one study documented that males are more likely to help when the context is masculine in nature (MacGeorge, 2003).

The importance of considering gender in context is nowhere more apparent than when examining what is culturally prescribed behavior for females and males in different countries around the world (Hyde &

androgyny The presence of positive masculine and feminine characteristics in the same individual.

Else-Quest, 2013; UNICEF, 2016). Although there has been greater acceptance of androgyny and similarities in male and female behavior in the United States, in many countries gender roles have remained gender-specific. For example, in many Middle Eastern and some Asian countries, the division of labor between males and females is dramatic. Males are socialized and schooled to work in the public sphere, females in the private world of home and child rearing. In Iran, the dominant view is that the man's duty is to provide for his family and the woman's is to care for her family and household. China also has been a male-dominant culture. Although women have made some strides in China, especially in urban areas, the male role is still dominant. Most males in China do not accept androgynous behavior and gender equity.

Families

Our discussion of parenting and families in this section focuses on how parent-child interactions typically change in middle and late childhood, how parents act as managers, the role of attachment, and how children are affected by living with stepparents.

Developmental Changes in Parent-Child Relationships

As children move into the middle and late childhood years, parents spend considerably less time with them (Grusec & others, 2013). In one study, parents spent less than half as much time with their children aged 5 to 12 in caregiving, instruction, reading, talking, and playing as they did when the children were younger (Hill & Stafford, 1980). However, parents continue to be extremely important in their children's lives. One analysis concluded:

"Parents serve as gatekeepers and provide scaffolding as children assume more responsibility for themselves and . . . regulate their own lives" (Huston & Ripke, 2006, p. 422).

Parents especially play an important role in supporting and stimulating children's academic achievement in middle and late childhood (Simpkins, Fredricks, & Eccles, 2015). The value parents place on education can make a difference in whether children do well in school. Parents not only influence children's in-school achievement, but they also make decisions about children's out-of-school activities. Whether children participate in sports, music, and other activities is heavily influenced by the

extent to which parents sign up children for such activities and encourage their participation (Simpkins & others, 2006).

Elementary school children tend to receive less physical discipline than preschoolers. Instead of spanking or coercive holding, their parents are more likely to use deprivation of privileges, appeals to the child's self-esteem, comments designed to increase the child's sense of guilt, and statements that the child is responsible for his or her actions. During middle and late childhood, some control is transferred from



In China, females and males are usually socialized to behave, feel, and think differently. The old patriarchal traditions of male supremacy have not been completely uprooted. Chinese women still make considerably less money than Chinese men do. In rural China, male supremacy still governs many women's lives.

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What are some changes in the focus of parent-child interaction in middle and late childhood?

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parent to child. A gradual process, it produces *coregulation* rather than control by either the child or the parent alone (Maccoby, 1984). Parents continue to exercise general supervision and control, while children are allowed to engage in moment-to-moment self-regulation. The major shift to autonomy does not occur until about the age of 12 or later. A key developmental task as children move toward autonomy is learning to relate to adults outside the family on a regular basis—adults such as teachers who interact with the child much differently from the way parents do.

Parents as Managers

Parents can play important roles as managers of children's opportunities, as monitors of their behavior, and as social initiators and arrangers (Clarke-Stewart & Parke, 2014). Mothers are more likely than fathers to engage in a managerial role in parenting.

Family management practices are positively related to students' grades and self-responsibility, and negatively to school-related problems (Eccles, 2007). Among the most important are maintaining a structured and organized family environment, such as establishing routines for homework, chores, bedtime, and so on, and effectively monitoring the child's behavior. A research review of family functioning in African American students' academic achievement found that when parents monitored their son's academic achievement by ensuring that homework was completed, restricted time spent on nonproductive distractions (such as video games and TV), and participated in a consistent, positive dialogue with teachers and school officials, their son's academic achievement benefited (Mandara, 2006).

Attachment

Earlier you read about the importance of secure attachment in infancy and the role of sensitive parenting in attachment (Thompson, 2015, 2016). During middle and late childhood, attachment becomes more sophisticated. As children's social worlds expand to include peers, teachers, and others, they typically spend less time with parents. Kathryn Kerns and her colleagues (Kerns & Brumariu, 2016; Kerns & Seibert, 2012) have studied links between attachment to parents and various child outcomes in the middle and late childhood years and found that secure attachment is associated with a lower level of internalized symptoms, anxiety, and depression in children. One study revealed that children who were less securely attached to their mothers reported having more anxiety (Brumariu, Kerns, & Seibert, 2012). Also in this study, secure attachment was linked to a higher level of children's emotion regulation and less difficulty in identifying emotions.

Stepfamilies

Not only has divorce become commonplace in the United States, so has getting remarried (Ganong, Coleman, & Russell, 2015). It takes time to marry, have children, get divorced, and then remarry. Consequently, there are far more elementary and secondary school children than infants or preschool children living in stepfamilies. The number of remarriages involving children has grown steadily in recent years. Also, divorces occur at a 10 percent higher rate in remarriages than in first marriages (Cherlin & Furstenberg, 1994). About half of all children whose parents divorce will have a step-parent within four years after the separation.

Remarried parents face unique tasks. The couple must define and strengthen their marriage while renegotiating the biological parent-child relationships and establishing stepparent-stepchild and stepsibling relationships (Ganong, Coleman, & Russell, 2015). The complex histories and multiple relationships make adjustment difficult (Dodson & Davies, 2014). Only one-third of stepfamily couples stay remarried.

Most stepfamilies are preceded by divorce rather than death of a spouse (Pasley & Moorefield, 2004). Three common types of stepfamily structure are (1) stepfather,

(2) stepmother, and (3) blended or complex. In stepfather families, the mother typically had custody of the children and remarried, introducing a stepfather into her children's lives. In stepmother families, the father usually had custody and remarried, introducing a stepmother into his children's lives. In a blended or complex stepfamily, both parents bring children from previous marriages.

In Hetherington's (2006) longitudinal analyses, children and adolescents who had been in a simple stepfamily (stepfather or stepmother) for a number of years were adjusting better than in the early years of the remarried family and were functioning well in comparison with children and adolescents in conflictual families that had not gone through a divorce, and children and adolescents in complex (blended) stepfamilies. More than 75 percent of the adolescents in long-established simple stepfamilies described their relationships with their stepparents as "close" or "very close." Hetherington (2006) concluded that in long-established simple stepfamilies adolescents seem to eventually benefit from the presence of a stepparent and the resources provided by the stepparent.

Children often have better relationships with their custodial parents (mothers in stepfather families, fathers in stepmother families) than with stepparents (Santrock, Sitterle, & Warshak, 1988). Also, children in simple families (stepmother, stepfather) often show better adjustment than their counterparts in complex (blended) families (Hetherington, 2006).

As in divorced families, children in stepfamilies show more adjustment problems than children in never-divorced families (Hetherington, 2006)—academic problems and lower self-esteem, for example (Anderson & others, 1999). However, it is important to recognize that a majority of children in stepfamilies do not have problems. In one analysis, 25 percent of children from stepfamilies showed adjustment problems, compared with 10 percent in intact, never-divorced families (Hetherington & Kelly, 2002).

How Would You...?

As a **human development and family studies professional**, what advice would you offer to divorced parents who want to ease their children's adjustment to remarriage?



Peers

Having positive relationships with peers is especially important in middle and late childhood (Rubin & others, 2016; Wentzel & Ramani, 2016). Engaging in positive interactions with peers, resolving conflicts in nonaggressive ways, and having quality friendships not only bring positive outcomes at this time in children's lives, but also are linked to more positive relationships in adolescence and adulthood (Huston & Ripke, 2006). In one longitudinal study, being popular with peers and engaging in low levels of aggression at 8 years of age were related to higher levels of occupational status at 48 years of age (Huesmann & others, 2006). Another study found that peer competence (a composite measure that included social contact with peers, popularity with peers, friendship, and social skills) in middle and late childhood was linked to having better relationships with coworkers in early adulthood (Collins & van Dulmen, 2006). And a recent study indicated that low peer status in childhood (low acceptance/likeability) was linked to increased probability of being unemployed and having mental health problems in adulthood (Almqvist & Brannstrom, 2014).



What are some key aspects of peer relationships in middle and late childhood?

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popular children Children who are frequently nominated as a best friend and are rarely disliked by their peers.

average children Children who receive an average number of both positive and negative nominations from their peers.

neglected children Children who are infrequently nominated as a best friend but are not disliked by their peers.

rejected children Children who are infrequently nominated as a best friend and are actively disliked by their peers.

controversial children Children who are frequently nominated both as someone's best friend and as being disliked.

Developmental Changes

As children enter the elementary school years, reciprocity becomes especially important in peer interchanges. Researchers estimate that the percentage of time spent in social interaction with peers increases from approximately 10 percent at 2 years of age to more than 30 percent in middle and late childhood (Rubin, Bukowski, & Parker, 2006). In an early classic study, a typical day in elementary school included approximately 300 episodes with peers (Barker & Wright, 1951). As children move through middle and late childhood, the size of their peer group increases, and peer interaction is less closely supervised by adults (Rubin & others, 2016). Until about 12 years of age, children's preference for same-sex peer groups increases.

Peer Status

Which children are likely to be popular with their peers and which ones tend to be disliked? Developmentalists address this and similar questions by examining *sociometric status*, a term that describes the extent to which children are liked or disliked by their peer group (Rubin, Bukowski, & Bowker, 2015). Sociometric status is typically assessed by asking children to rate how much they like or dislike each of their classmates. Status may also be assessed by asking children to nominate the children they like the most and those they like the least.

Developmentalists have distinguished five peer statuses:

- **Popular children** are frequently nominated as a best friend and are rarely disliked by their peers.
- **Average children** receive an average number of both positive and negative nominations from their peers.
- **Neglected children** are infrequently nominated as a best friend but are not disliked by their peers.
- **Rejected children** are infrequently nominated as someone's best friend and are actively disliked by their peers.
- **Controversial children** are frequently nominated both as someone's best friend and as being disliked.

Popular children have many social skills that contribute to their being well liked. They give out reinforcements, listen carefully, maintain open lines of communication with peers, are happy, control their negative emotions, show enthusiasm and concern for others, and are self-confident without being conceited (Hartup, 1983; Rubin, Bukowski, & Bowker, 2015).

Rejected children often have significant adjustment problems (Rubin & others, 2016). For example, a recent study revealed a link between peer rejection and depression in adolescence (Platt, Kadosh, & Lau, 2013). Researchers also have found that peer rejection consistently is linked to the development and maintenance of conduct problems (Chen, Drabick, & Burgers, 2015). John Coie (2004, pp. 252–253) provided three reasons why aggressive, peer-rejected boys have problems in social relationships:

- “First, the rejected, aggressive boys are more impulsive and have problems sustaining attention. As a result, they are more likely to be disruptive of ongoing activities in the classroom and in focused group play.
- Second, rejected, aggressive boys are more emotionally reactive. They are aroused to anger more easily and probably have more difficulty calming down once aroused. Because of this they are more prone to become angry at peers and attack them verbally and physically. . . .
- Third, rejected children have fewer social skills in making friends and maintaining positive relationships with peers.”

How Would You...?

As a **social worker**, how would you help a rejected child develop more positive relationships with peers?



Social Cognition

Social cognition involves thoughts about social matters, such as an aggressive boy's interpretation of an encounter as hostile and his classmates' perception of his behavior as inappropriate (Carpendale & Lewis, 2015). Children's social cognition about their peers becomes increasingly important for understanding peer relationships in middle and late childhood. Of special interest are the ways in which children process information about peer relations and their social knowledge (Dodge, 2011).

Kenneth Dodge (1983) argues that children go through six steps in processing information about their social world. They selectively attend to social cues, attribute intent, generate goals, access behavioral scripts from memory, make decisions, and enact behavior. Dodge has found that aggressive boys are more likely to perceive another child's actions as hostile when the child's intention is ambiguous. Furthermore, when aggressive boys search for cues to determine a peer's intention, they respond more rapidly, less efficiently, and less reflectively than do nonaggressive children. These are among the social cognitive factors believed to be involved in children's conflicts.

Social knowledge also is involved in children's ability to get along with peers. They need to know what goals to pursue in poorly defined or ambiguous situations, how to initiate and maintain a social bond, and what scripts to follow to get other children to be their friends. For example, as part of the script for getting friends, it helps to know that saying nice things, regardless of what the peer does or says, will make the peer like the child more.

How Would You...?

As a **psychologist**, how would you characterize differences in the social cognition of aggressive children compared with children who behave in less hostile ways?



Bullying

Significant numbers of students are victimized by bullies (Connell, Morris, & Piquero, 2016; Espelage & Colbert, 2016). In a survey of 15,000 students in grades 6 through 10, nearly one-third said that they had experienced occasional or frequent involvement as a victim or perpetrator in bullying (Nansel & others, 2001). Bullying was defined as verbal or physical behavior intended to disturb someone less powerful (see Figure 3). Boys are more likely to be bullies than girls, but gender differences regarding victims of bullies are less clear (Peets, Hodges, & Salmivalli, 2011). In the study, boys and younger middle school students were most likely to be bullied (Nansel & others, 2001). Bullied children reported more loneliness and difficulty in making friends, while those who did the bullying were more likely to have low grades and to smoke and drink alcohol.

Anxious, socially withdrawn, and aggressive children are often the victims of bullying. Anxious and socially withdrawn children may be victimized because they are nonthreatening and unlikely to retaliate if bullied, whereas aggressive children may be the targets of bullying because their behavior is irritating to bullies (Rubin & others, 2016). A recent study revealed that having supportive friends was linked to a lower level of bullying and victimization (Kendrick, Jutengren, & Stattin, 2012).

Social contexts also influence bullying (Prinstein & Giletta, 2016; Troop-Gordon & Ladd, 2015). Seventy to 80 percent of victims and their bullies are in the same classroom (Salmivalli, Peets, & Hodges, 2011). Classmates are often aware of and may witness bullying. The larger

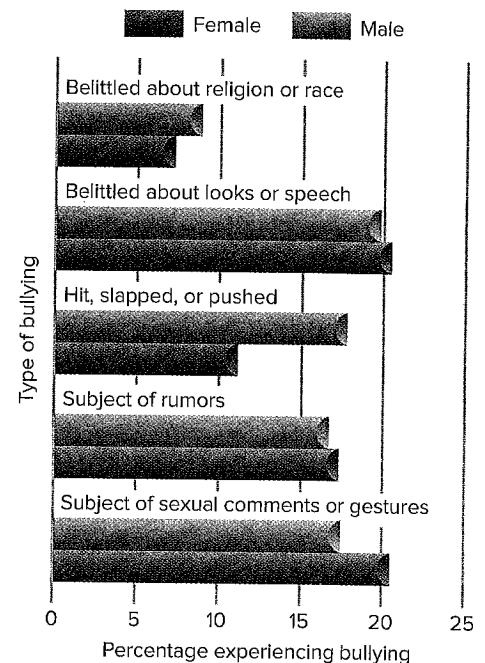


Figure 3 Bullying Behaviors Among U.S. Youth

This graph shows the types of bullying most often experienced by U.S. youth. The percentages reflect the extent to which bullied students said that they had experienced a particular type of bullying. In terms of gender, note that when they were bullied, boys were more likely to be hit, slapped, or pushed than girls were.



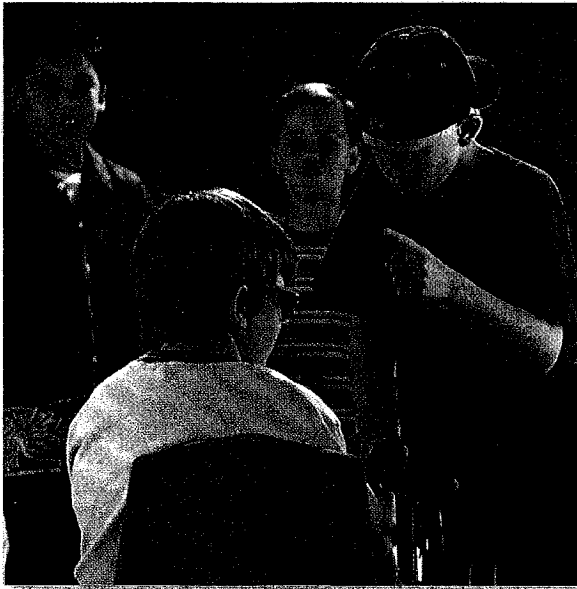
How Would You...?

As a **health-care professional**, how would you characterize the health risks that bullying poses to the victims of bullying?

social context of the peer group plays an important role in bullying. Bullies often torment victims to gain higher status in the peer group and need others to witness their power displays. Many bullies are not rejected by the peer group.

What are the outcomes of bullying? Children who are bullied are more likely to experience depression, engage in suicidal ideation, and attempt suicide than their counterparts who have not been the victims of bullying (Yen & others, 2014). Peer victimization during the elementary school years was a leading indicator of internalizing problems (depression, for example) in adolescence (Schwartz & others, 2015). Also, a recent longitudinal study of 6,000 children found that children who were the victims of peer bullying from 4 to 10 years of age were more likely to engage in suicidal ideation at 11½ years of age (Winsper & others, 2012). Further, a recent analysis concluded that bullying can have long-term effects, including difficulty in forming lasting relationships and getting along with coworkers (Wolke & Lereya, 2015).

An increasing concern is peer bullying and harassment on the Internet (called *cyberbullying*) (Vollink, Dehue, & McGuckin, 2016; Wolke, Lereya, & Tippet, 2016). One study involving third- to sixth-graders revealed that engaging in cyber aggression was related to loneliness, lower self-esteem, fewer mutual friendships, and lower peer popularity (Schoffstall & Cohen, 2011). Another recent study revealed that cyberbullying contributed to depression and suicidal ideation above and beyond the contribution of involvement in traditional types of bullying (physical and verbal bullying in school and in neighborhood contexts, for example) (Bonanno & Hymel, 2013). And a recent meta-analysis concluded that being the victim of cyberbullying was linked to stress and suicidal ideation (Kowalski & others, 2014). Further, a longitudinal study found that adolescents experiencing social and emotional difficulties were more likely to be both cyberbullied and traditionally bullied than traditionally bullied only (Cross, Lester, & Barnes, 2015). In this study, adolescents targeted in both ways stayed away from school more than their counterparts who were traditionally bullied only. Information about preventing cyber bullying can be found at www.stopcyberbullying.org/.



What characterizes bullying?

What are some strategies to reduce bullying?

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Extensive interest has been directed toward finding ways to prevent and treat bullying and victimization (Cantone & others, 2015; Espelage & Colbert, 2016; Menesini, Palladino, & Nocentini, 2016; Olweus, 2013). A research review revealed mixed results for school-based intervention (Vreeman & Carroll, 2007). School-based interventions vary greatly, ranging from involving the whole school in an antibullying campaign to providing individualized social skills training. One of the most promising bullying intervention programs has been created by Dan Olweus. This program focuses on 6- to 15-year-olds with the goal of decreasing opportunities and rewards for bullying. School staff is instructed in ways to improve peer relations and make schools safer. When properly implemented, the program reduces bullying by 30 to 70 percent (Olweus, 2003). A recent research review concluded that interventions focused on the whole school, such as Olweus', are more effective than interventions involving classroom curricula or social skills training (Cantone & others, 2015).

How Would You...?

As an **educator**, how would you design and implement a bullying reduction program at your school?



Friends

Friendship is an important aspect of children's lives in middle and late childhood (Rubin & others, 2016). Like adult friendships, children's friendships are typically characterized by similarity (Prinstein & Giletta, 2016). Throughout childhood, friends are more similar than dissimilar in terms of age, sex, race, and many other factors. Friends often have similar attitudes toward school, similar educational aspirations, and closely aligned achievement orientations.

Willard Hartup (1983, 1996, 2009) has studied peer relations and friendship for more than three decades and has concluded that friends can be cognitive and emotional resources from childhood through old age, fostering self-esteem and a sense of well-being. More specifically, children's friendships can serve six functions (Gottman & Parker, 1987):

- *Companionship.* Friendship provides children with a familiar partner and playmate, someone who is willing to spend time with them and join in collaborative activities.
- *Stimulation.* Friendship provides children with interesting information, excitement, and amusement.
- *Physical support.* Friendship provides time, resources, and assistance.
- *Ego support.* Friendship provides the expectation of support, encouragement, and feedback, which helps children maintain an impression of themselves as competent, attractive, and worthwhile individuals.
- *Social comparison.* Friendship provides information about where the child stands vis-à-vis others and whether the child is doing okay.
- *Affection and intimacy.* Friendship provides children with a warm, close, trusting relationship with another individual. Intimacy in friendships is characterized by self-disclosure and the sharing of private thoughts. Research reveals that intimate friendships may not appear until early adolescence (Berndt & Perry, 1990).

Although having friends can bring developmental advantages, not all friendships are alike (Choukas-Bradley & Prinstein, 2016; Deutsch & others, 2015; Furman & Rose, 2015). People differ in the company they keep—that is, who their friends are. Developmental advantages occur when children have friends who are socially skilled and supportive (Chow, Tan, & Buhrmester, 2015; Kindermann, 2016; Schneider, 2016). However, it is not developmentally advantageous to have coercive and conflict-ridden friendships (Schneider, 2016).

Friendship also plays an important role in children's emotional well-being and academic success. Students with friends who are academically oriented are more likely to achieve success in school themselves (Wentzel, 2015; Wentzel & Ramani, 2016). In one study, sixth-grade students who did not have any friends engaged in less prosocial behavior (cooperation, sharing, helping others), had lower grades, and were more emotionally distressed (depression, lower levels of well-being) than their counterparts who had one or more friends (Wentzel, Barry, & Caldwell, 2004). In this study, two years later as eighth graders, the students who did not have a friend in the sixth grade continued to be more emotionally distressed.

Schools

For most children, entering the first grade signals new obligations. They form new relationships and develop new standards by which to judge themselves. School provides children with a rich source of new ideas to shape their sense of self. They will spend many years in schools as members of small societies in which there are tasks to be accomplished, people to socialize with and be socialized by, and rules that define and limit behavior, feelings, and attitudes. By the time students graduate from high school, they will have spent 12,000 hours in the classroom.

Contemporary Approaches to Student Learning

Because there are so many different educational approaches, controversy swirls about the best way to teach children (Borich, 2017; Lynch, 2015; Powell, 2015). There also is considerable interest in finding the best way to hold schools and teachers accountable for whether children are learning (McMillan, 2014).

Constructivist and Direct Instruction Approaches

The **constructivist approach** is learner centered and emphasizes the importance of individuals actively constructing their knowledge and understanding with guidance from the teacher. In the constructivist view, teachers should not attempt to simply pour information into children's minds. Rather, children should be encouraged to explore their world, discover knowledge, reflect, and think critically with careful monitoring and meaningful guidance from the teacher (Burden & Byrd, 2016; Robinson-Zanartu, Doerr, & Portman, 2015). The constructivist belief is that for too long in American education children have been required to sit still, be passive learners, and rote memorize irrelevant as well as relevant information (Sadker & Zittleman, 2016). Today, constructivism may include an emphasis on collaboration—children working with each other in their efforts to know and understand. A teacher with a constructivist instructional philosophy would not have children memorize information rote but would guide their learning while giving them opportunities to meaningfully construct their knowledge and deepen their understanding of the material.

By contrast, the **direct instruction approach** is structured and teacher centered. It is characterized by teacher direction and control, high teacher expectations for students' progress, maximum time spent by students on academic tasks, and efforts by the teacher to keep negative affect to a minimum. An important goal in the direct instruction approach is maximizing student learning time (Parkay, 2016).

Advocates of the constructivist approach argue that the direct instruction approach turns children into passive learners and does not adequately challenge them to think in critical and creative ways (Robinson-Zanartu, Doerr, & Portman, 2015). The direct instruction enthusiasts say that the constructivist approaches do not give enough attention to the content of a discipline, such as history or science. They also believe that the constructivist approaches are too relativistic and vague.

Some experts believe that many effective teachers use both a



Is this classroom more likely to be constructivist or direct instruction? Explain.

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constructivist approach

A learner-centered approach that emphasizes the importance of individuals actively constructing their knowledge and understanding with guidance from the teacher.

direct instruction approach A structured, teacher-centered approach that is characterized by teacher direction and control, high teacher expectations for students' progress, maximum time spent by students on learning tasks, and efforts by the teacher to keep negative affect to a minimum.

constructivist *and* a direct instruction approach rather than relying on either approach exclusively (Bransford & others, 2006). Some circumstances may call more for a constructivist approach, others for direct instruction. For example, experts increasingly recommend an explicit, intellectually engaging direct instruction approach when teaching students who have a learning disability involving reading or writing (Berninger & others, 2015).

Accountability

Since the 1990s, the U.S. public and governments at every level have demanded increased accountability from schools. One result has been the spread of state-mandated tests to measure what students have or have not learned (Brookhart & Nitko, 2015; Popham, 2017). Many states have