

Section 1 Physical Development

Learning Objectives

- 7.1 Identify the changes in physical and sensory development that take place during middle childhood.
- 7.2 Explain how motor development advances in middle childhood and how these advancements are related to new skills and participation in games and sports.
- 7.3 Describe the negative effects of both malnutrition and obesity on development, and identify the causes of obesity.
- 7.4 Explain why rates of illness and injury are relatively low in middle childhood, and why rates of asthma have risen.

PHYSICAL DEVELOPMENT: Growth in Middle Childhood

Middle childhood growth is not as rapid as at earlier ages, but children continue to add height and weight. Some children become near-sighted during these years and need to start wearing glasses.

Physical Growth and Sensory Development

- LO 7.1** Identify the changes in physical and sensory development that take place during middle childhood.

In middle childhood, physical growth continues at a slow but steady pace, about 2–3 inches (5–8 cm) per year in height and about 5–7 pounds (2½–3 kg) per year in weight. Boys continue to be slightly taller and to weigh slightly more than girls, on average. For both boys and girls, middle childhood is the time of life when they are mostly likely to be slim. Of all age groups in the life span, 6- to 10-year-olds have the lowest **body mass index (BMI)**, a measure of the ratio of weight to height (Gillaume & Lissau, 2002). Boys continue to have somewhat more muscle than girls do in middle childhood, and girls continue to have somewhat more body fat, so the average boy is stronger than the average girl. However, both boys and girls grow stronger during this stage. For example, the average 10-year-old can throw a ball twice as far as the average

cultural models

cognitive structures pertaining to common cultural activities

body mass index (BMI)

measure of the ratio of weight to height

Middle childhood is the time of life when people are most likely to be slim.



6-year-old. Children run faster and longer, too, over the course of middle childhood, as lung capacity expands (Malina et al., 2004).

From age 6 to 12, children lose all 20 of their “primary teeth” and new, permanent teeth replace them. The two top front teeth are usually the first to go. The permanent teeth are adult-sized teeth that do not grow much once they come in, giving children in middle childhood a toothy smile that sometimes looks a little too big for their mouths.

Sight and hearing both change in middle childhood, hearing usually for the better, sight more likely for the worse. Hearing often improves because the tube in the inner ear that is the site of ear infections in toddlerhood and early childhood has now matured and is longer and narrower than it was before (Bluestone, 2007). This structural change makes it less likely for fluid containing bacteria to flow from the mouth to the ear, which in turn makes inner ear infections less likely.

With regard to sight, the incidence of **myopia**, also known as being *nearsighted*, rises sharply in middle childhood. This is a problem that is more likely to occur in developed countries than in developing countries. The more children read, write, and use computers, the more likely they are to develop myopia (Feldkamper & Schaeffel, 2003; Saw et al., 2002). Consequently, rates of myopia are highest in the developed countries where children are mostly likely to have access to books and computers. Myopia is also partly genetic, as MZ twins have a higher concordance rate (see Chapter 1) than DZ twins do (Pacella et al., 1999). About one fourth of children in developed countries need glasses by the end of middle childhood (Mutti et al., 2002).

Motor Development

- LO 7.2** Explain how motor development advances in middle childhood and how these advancements are related to new skills and participation in games and sports.

Children advance in both gross and fine motor development during middle childhood, nearly reaching maturity in their fine motor abilities. Children become stronger and more agile, and as their gross motor skills develop, they spend more of their days in active play and organized sports. They also become capable of complex fine motor activities such as writing.

GROSS MOTOR DEVELOPMENT AND PHYSICAL ACTIVITY Watch a group of children on the playground of an elementary school, and you will see lots of activity. In one corner, a group of girls practices a dance routine one of them has learned from watching a TV show. In another, boys play four square, bouncing a ball into each other’s square and attempting to defend their own by knocking the ball to someone else’s square. In the middle, a group of boys and girls play tag, the perennial favorite.

In a variety of ways, gross motor development advances from early to middle childhood. Children’s *balance* improves, allowing them to stay steady on a bike without training wheels or walk on a board across a river. They become *stronger*, so that they can jump higher and throw a ball farther. Their *coordination* advances so that they can perform movements in activities such as swimming and skating that require the synchronization of different body parts. They have greater *agility* so that they can move more quickly and precisely, for example when changing directions while playing soccer. Finally, their *reaction time* becomes faster, allowing them to respond rapidly to changing information, for example when hitting a tennis ball over the net or when catching or hitting a baseball (Kail, 2003). Increasing myelination of the *corpus callosum* connecting

myopia

visual condition of being unable to see distant objects clearly; also known as being nearsighted

the two hemispheres of the brain (see Chapter 6) accelerates reaction time in middle childhood for both gross motor and fine motor tasks (Roeder et al., 2008). The video *Gross Motor Development in Middle Childhood* shows examples of these advances.

Watch GROSS MOTOR DEVELOPMENT IN MIDDLE CHILDHOOD



Video

As their gross motor development advances, children can enjoy a wide range of games and sports. All over the world, middle childhood is a time of playing physically active games with siblings and friends, from tag and hide-and-seek to soccer, cricket, baseball, and basketball. Most of their play is informal, and takes place on the street or in a park or in the school yard when a few kids gather and decide to start a game (Kirchner, 2000). However, middle childhood is also the time when children are most likely to be involved in organized sports. For example, Little League baseball is played in 75 countries around the world during the middle childhood years. In the United States, 66% of boys and 52% of girls are involved in organized sports at least once between the ages of 5 and 18 (Statistic Brain, 2014). Although boys are slightly more likely than girls to play on sports teams in middle childhood, the rate of participation among girls has risen worldwide in recent decades, especially in sports such as soccer, swimming, gymnastics, and basketball.

Nevertheless, in the view of public health advocates, children do not get nearly as much gross motor activity as they should, leading to high rates of obesity, as we will see shortly. Middle childhood may be a time of great advancements in gross motor abilities, but physically active games and sports compete today with the electronic allurements of TV and computer games (Anderson & Butcher, 2006). In some places, schools are less likely than in the past to be a setting for physical activity. In the United States, the percentage of children involved in daily “physical education” programs during middle childhood decreased from 80% in 1969 to just 8% by 2005 (Centers for Disease Control and Prevention [CDC], 2006). Health

Middle childhood is when children are most likely to be involved in organized sports.



authorities recommend 60 minutes of physical activity a day for children ages 6–17, but few American children get that much (see <http://www.cdc.gov/physicalactivity/everyone/guidelines/index.html>).

FINE MOTOR DEVELOPMENT Fine motor development also makes great advances from early childhood to middle childhood. Not many 3- or 4-year-olds can tie their shoes successfully, but nearly all 8- to 9-year-olds can. In Asian cultures, only about half of 4-year-olds can use chopsticks well enough to eat with them, but for children 6 years old and up it comes easily (Wong et al., 2002). In many developing countries, children become valuable as factory workers in middle childhood because of their abilities to perform intricate fine motor tasks such as weaving rugs (International Labor Organization [ILO], 2013).

Across cultures, advances in fine motor development are especially evident in two areas, drawing and writing. In early childhood, drawing skills are limited to crude depictions of two-dimensional figures. However, in the course of middle childhood children learn to indicate three-dimensional depth by overlapping objects and making near objects smaller than distant ones (Braine et al., 1993). They also learn to draw objects in greater detail and to adjust the size and relation of objects in a drawing so that they fit together into one coherent whole (see Figure 7.1; Case & Okamoto, 1996).

With regard to writing, in early childhood most children learn to write a few letters and numbers in rough form. In middle childhood, their skills greatly advance (Berninger et al., 2006). Even by age 6 most children are able to write the letters of the alphabet, their own names, and numbers from 1 to 10. In the course of the next several years, as their fine motor abilities develop, they are able to make their letters smaller and neater with more consistent height and spacing. By age 8 or 9 most children can learn to write in cursive. By the end of middle childhood their fine motor abilities have nearly reached adult maturity, whereas gross motor development will continue to advance for many years to come.



Figure 7.1 Change in Drawing Abilities from Early to Middle Childhood

Drawings become more realistic as fine motor development advances during middle childhood. Here are drawings that my daughter, Paris, made at ages 3 (top), 5 (left), and 7 (right).

Practice Quiz

ANSWERS AVAILABLE IN ANSWER KEY.

- During middle childhood, _____.
 - girls are usually taller and heavier than boys
 - girls and boys are more likely to be slim than at any other time
 - the incidence of myopia decreases
 - ear infections are more likely than they were earlier in the lifespan because of more exposure to germs during the school years
- During middle childhood, _____.
 - bodies are pudgier than they were in toddlerhood with a higher body mass index
 - children run longer and faster because of expanded lung capacity
 - the proportion of body fat is identical for girls and boys
 - growth continues at the same rate as in infancy
- During middle childhood, there is an increase in myelination of the _____ that accelerates the reaction time for both boys and girls.
 - Broca's area
 - Wernicke's area
 - corpus callosum
 - pituitary gland
- For 6-year-old Emmanuel, which of the following fine motor tasks is developmentally appropriate?
 - Writing complete sentences and spelling multi-syllable words, such as "hippopotamus"
 - Running a 4-minute mile, jumping over hurdles, and dribbling a basketball
 - Writing the letters of the alphabet, writing his name, and writing numbers from 1 to 10
 - Writing in cursive
- By the time Shawna has reached the end of middle childhood, what abilities are close to adult maturity?
 - Fine motor abilities
 - Gross motor abilities
 - Eye-hand coordination
 - Psycho-motor skills

PHYSICAL DEVELOPMENT: Health Issues

Middle childhood is an exceptionally healthy time of life. In this life stage, children become less vulnerable to the effects of malnutrition, and it is the time of life when they are least likely to be obese. However, obesity has become more prevalent in recent decades in developed countries, even in middle childhood.

Malnutrition and Obesity

LO 7.3 Describe the negative effects of both malnutrition and obesity on development, and identify the causes of obesity.

By middle childhood, children have grown large enough that they are less vulnerable to the effects of malnutrition than they were earlier. Even if they are deprived of food for a period of time, their bodies have enough resources to weather the deprivation without the effects being as severe as in earlier life stages. Nevertheless, malnutrition can have enduring negative effects in middle childhood. Obesity also becomes a problem for many children in middle childhood, especially those in developed countries.

MALNUTRITION As we have seen in previous chapters, malnutrition in early development often results in illness, disease, or death. In middle childhood, bodies are stronger and more resilient, and immune systems are better developed. Nevertheless, malnutrition has effects in middle childhood as well. Even for children who survive early malnutrition, the damage to their physical and cognitive development accumulates by middle childhood (Liu et al., 2003).

A longitudinal study in Guatemala showed how nutrition in the early years contributes to cognitive and social functioning in middle childhood (Barrett & Frank, 1987). Children who were classified in early childhood as having "high nutrient levels" were more likely than children with "low nutrient levels" to explore new environments in middle childhood and to persist in a frustrating situation. They were also more energetic, less anxious, and showed more positive emotion. A more recent study, in Ghana, reported similar results, with children who experienced mild-to-moderate malnutrition in their early years demonstrating lower levels of cognitive development in middle childhood on

standardized tests and in teacher ratings, compared to children who were not malnourished (Appoh & Krekling, 2004). The malnourished children were also more likely to be rated by teachers as anxious, sad, and withdrawn (Appoh, 2004).

Other studies in other countries have found similar results, with better-nourished children scoring higher than malnourished children on a wide range of cognitive and social measures in middle childhood (Grigorenko, 2003; Kitsao-Wekulo et al., 2013). However, there is a consensus that the sensitive period for long-term effects of malnutrition is from the second trimester of pregnancy through age 3 (Galler et al., 2005). Malnutrition that begins after age 3 does not appear to result in permanent cognitive or behavioral deficits.

OBESITY Children in developed countries have a different kind of nutritional problem: not too few calories but too many. Across countries, rates of **overweight** and **obesity** are highest in the most affluent regions (North America and Europe) and lowest in the poorest regions (Africa and Southeast Asia) (Wang & Lobstein, 2006). Rates across the United States are higher than in most other developed countries and are especially high in the least affluent ethnic minority groups, including African Americans and Latinos, as shown in Figure 7.2 (Ogden et al., 2014). Rates of overweight and obesity have risen sharply worldwide in recent decades. Figure 7.3 shows the increase in childhood obesity within the United States since the 1970s.

A variety of changes have contributed to the rise in childhood obesity (Ogden et al., 2014). Most important is the change in diets. Over recent decades people have become less likely to prepare meals at home and more likely to buy meals away from home, especially "fast foods" like hamburgers, french fries, and pizza that are high in fat content, and then they wash it down with soft drinks high in sugar content. This change reflects other social changes: Parents are less likely to prepare meals at home because they are more likely than in the past to be single parents or to be part of a dual-earner couple. Rates of overweight and obesity are rising in the populations of developing countries in part because their diets are becoming more like the diets of people in developed countries (Gu et al., 2005; Popkin, 2010).

Another contributor is television. Most children in most developed countries watch at least 2 hours of television a day (Rideout, 2013). In a longitudinal study that followed a sample of American children from age 4 to 11, TV watching predicted gains in body fat (Proctor et al., 2003). Specifically, children who watched at least 3 hours of TV a day gained 40% more body fat over the course of the study than children who watched less than 1½ hours a day. Other studies have shown that the more time children watch TV the less time they spend in physical exercise (Institute of Medicine, 2005; Williams, 2005). Watching TV also exposes children to numerous advertisements for high-fat, high-sugar foods, which they then lobby their parents to buy (Kelly et al., 2010). Rates of overweight and obesity are especially high among African American and Latino children in part because those are also the children that tend to watch the most TV per day (Rideout, 2013). The allure of the Internet and electronic games gives children additional reasons to stay inside rather than getting outside and playing active physical games (Anderson & Butcher, 2006).

Genetics also make a contribution to obesity. Concordance rates for obesity are higher among MZ twins than

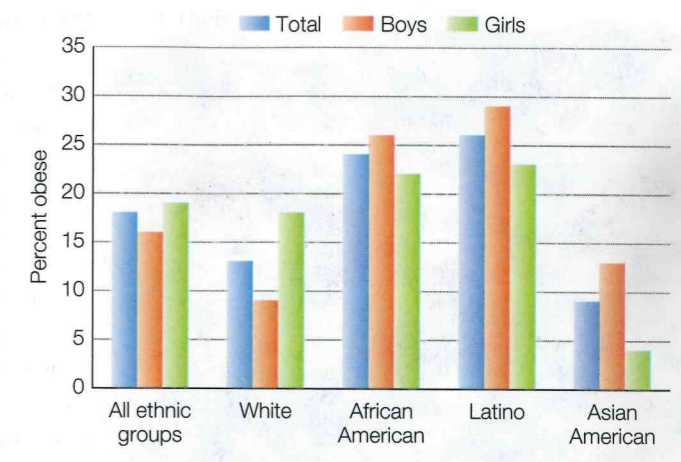


Figure 7.2 Childhood Obesity Rates in the United States, by Ethnicity

SOURCE: Based on Ogden et al. (2014).

overweight

in children, defined as having a BMI exceeding 18

obesity

in children, defined as having a BMI exceeding 21

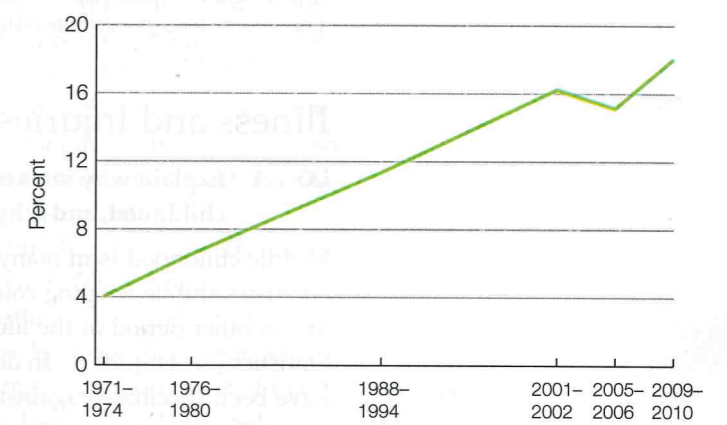
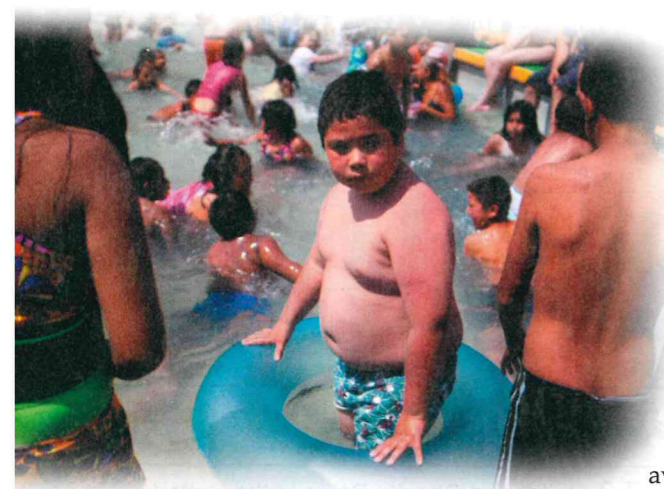


Figure 7.3 The Rise in Childhood Obesity, United States, Children Ages 6-11

SOURCE: Based on Fryar et al. (2012).



Rates of obesity are rising in developing countries as diets become more like those in the developed world. This photo was taken in Mexico, which has one of the highest child obesity rates in the world.

DZ twins. Adopted children tend to have BMIs that are closer to their biological parents than to their adoptive parents (Whitaker et al., 1997). Research has even identified a specific gene, called *FTO*, that sharply increases children's risk for obesity (Frayling et al., 2007). However, genetics cannot explain recent rises in obesity rates. Genetics provide only a risk for overweight and obesity, not a definite destiny.

A compelling demonstration of this comes from a naturalistic study of the Pima Indians in Arizona and Mexico (Gladwell, 1998). The Pima of Mexico live in a remote region and still maintain their traditional ways, including a traditional cultural diet that is high in vegetables and low in fats and sugars. In contrast, the Pima of Arizona have changed in recent decades and their diets have become more like the American mainstream. Consequently, they have an average BMI that is 50% higher than their counterparts in Mexico, even though the two groups are very similar genetically.

Obesity has both social and physical consequences for children. Being obese increases the likelihood that a child will be socially excluded and the object of ridicule by peers (Janssen et al., 2004; Puhl et al., 2010). Other children tend to associate obesity with undesirable traits such as being lazy, sloppy, ugly, and stupid (Tiggemann & Anesbury, 2000). By middle childhood obesity is a risk factor for a variety of emotional and behavioral problems (Puhl et al., 2010).

Physically, the consequences of obesity are equally serious. Even in middle childhood, obesity can result in diabetes, which can eventually lead to problems such as blindness, kidney failure, and stroke (Hannon et al., 2005; Ramchandani, 2004). Obesity also proves hard to shake from childhood to adulthood. About 80% of obese children remain overweight as adults (Ogden et al., 2014; Oken & Lightdale, 2000). For adults, the range of health problems resulting from obesity is even greater—including high blood pressure, heart attack, and cancer—and more likely to be fatal (Ng et al., 2014).

What can be done to reverse the sharp increase in childhood obesity? One step is recognizing the problem. Perhaps because obese children tend to have obese parents, studies indicate that fewer than half of parents of obese children view their children as overweight (Jeffrey, 2004; Young-Hyman et al., 2003). Public policies have begun to address the problem of childhood obesity. In the United States, school lunches have been notoriously unhealthy for decades, but national standards have been recently revised to provide healthier school lunches that are lower in fats and sugars (Jalonick, 2010).

CRITICAL THINKING QUESTION

Why do you think overweight and obesity are most common among low-income American ethnic groups even though, internationally, overweight and obesity are highest in the highest income countries?

Illness and Injuries

LO 7.4 Explain why rates of illness and injury are relatively low in middle childhood, and why rates of asthma have risen.

Middle childhood is in many ways the safest, healthiest time of life. In both developed countries and developing countries, death rates are lower during middle childhood than at any other period of the life span (Hyder & Lunnen, 2009; National Center for Health Statistics [NCHS], 2009). In developed countries, by middle childhood nearly all children have been vaccinated against the diseases that may have been fatal in earlier eras, such as smallpox, typhus, and diphtheria. In developing countries, an increasing proportion of children receive vaccinations in infancy, toddlerhood, and early childhood (World Health Organization [WHO], 2010). Even children who do not receive vaccinations are less susceptible to fatal diseases in middle childhood than they were earlier in their

development. Their natural immune systems have become stronger, and their bodies are bigger, stronger, and more resilient.

In developed countries, even rates of minor illnesses have declined in middle childhood in recent decades, due to public health policies. Over time, food production has become cleaner and safer, and food content more closely regulated by government agencies. The air and water have become cleaner in developed countries due to laws and restrictions by governments. For example, according to national U.S. studies, in 1978 nearly 30% of children ages 5–10 had dangerously elevated levels of lead in their blood, which can cause brain damage; by 2001, the rate had fallen to 1% (Morbidity and Mortality Weekly Report [MMWR], 2005). This decline reflects government policies that eliminated lead from gasoline and household paint.

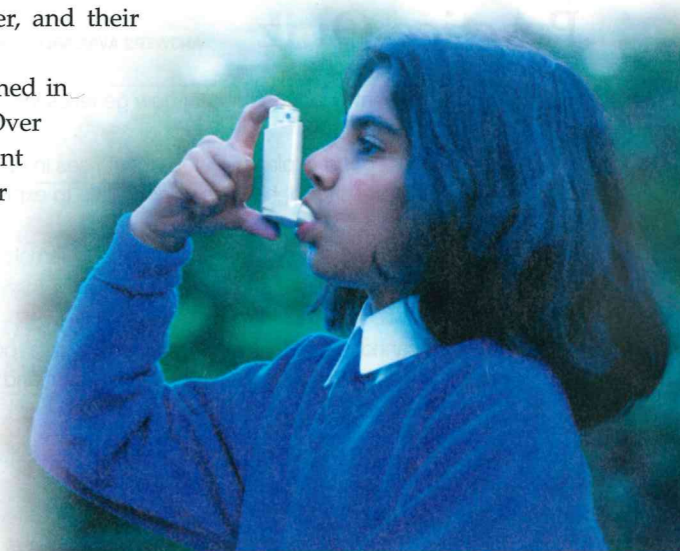
One exception to this trend toward healthier development in middle childhood is **asthma**, a chronic illness of the lungs characterized by wheezing, coughing, and shortness of breath. A person with asthma has periodic “asthma attacks” in which breathing is especially difficult (Israel, 2005). An asthma attack can be triggered by cold weather, exercise, illnesses, allergies, emotional stress, or for no clear reason (Akinbami & Schoendorf, 2002). Asthma attacks can be reduced through the use of medical injections and inhalers (Glauber et al., 2001; Yoos et al., 2006).

Rates of asthma are highest in middle childhood, and are increasing worldwide (Greenwood, 2011). Boys are at higher risk than girls, for reasons that are not clear (Federico & Liu, 2003). Other risk factors are low birth weight, having a parent who smokes, living in poverty, and obesity (Saha et al., 2005). Susceptibility to asthma is also transmitted genetically (Bosse & Hudson, 2007).

Why are rates of asthma higher now than in the past? The answer appears to be different for developed countries than for developing countries. In developed countries, common features of today's family households contribute to asthma, including carpets, hairy pets, and airtight windows (Tamay et al., 2007). There is also a “hygiene hypothesis” suggesting that high standards of cleanliness and sanitation expose children to fewer viruses and bacteria, and consequently they have fewer illnesses in their early years that would strengthen their immune systems and make them less susceptible to asthma (Tedeschi & Airaghi, 2006). In developing countries, air pollution has become worse as a result of increased industrialization, and air pollution can trigger asthma. One study in Mongolia compared people in rural and urban areas and found substantially higher rates of asthma in urban areas, due mainly to poorer air quality (Vinanen et al., 2007).

Rates of asthma are especially high among African American children, because they often live in urban neighborhoods where the air quality is poor (Pearlman et al., 2006). African Americans also have especially high rates of risk factors for asthma such as low birth weight and obesity. However, one study found that among children with asthma, the families of African American children were more likely than White families to take steps to change the environment in order to reduce risk factors that can trigger asthma attacks, with steps including use of mattress covers, use of pillow covers, cigarette smoke avoidance, pet avoidance, and carpet removal (Roy & Wisnivesky, 2010).

Like illness rates, injury rates are relatively low in middle childhood (Hyder & Lunnen, 2011; U.S. Department of Health and Human Services, 2005). Children in middle childhood are more agile than younger children and better at anticipating situations that may cause injury; compared to older children, they are kept closer to home and so are less likely to become involved in risky situations. The most common cause of injury in middle childhood is automobile accidents, followed by bicycle accidents (Safe Kids Worldwide, 2013). The use of bicycle helmets has become common in middle childhood in recent decades, and this practice has led to a sharp decrease in the number of head injuries experienced during these years (Miller et al., 2012).



Middle childhood is when rates of asthma are highest. This Indian girl is using an inhaler to relieve the symptoms.

asthma
chronic illness of the lungs characterized by wheezing, coughing, and shortness of breath

Practice Quiz

ANSWERS AVAILABLE IN ANSWER KEY.

- What is the current understanding of how genetics influence obesity?
 - Genetics is a good explanation for recent rises in obesity rates during childhood; however it does little to explain the rates of obesity for adulthood.
 - Genetics only explains obesity with regard to females.
 - Obesity is more likely to be caused by genetics than the environment.
 - Genetics cannot explain recent rises in obesity rates, but rather, genetics provides only a risk for overweight and obesity.
- Rates of childhood obesity _____
 - are higher in the United States than in most other developed countries
 - are equally high in different parts of the United States
 - have stayed relatively stable in the last decade
 - are highest among Americans from economically advantaged backgrounds who have access to more foods
- Your neighbors eat out quite a bit, and most of it is fast food. Their 8-year-old daughter is obese with a BMI of 24. Which of the following statements is most accurate?
 - They should not be concerned because most children outgrow their obesity.
 - As long as they emphasize that "beauty is from within," they should not be concerned about emotional problems.
 - They should be concerned because she is at heightened risk for kidney failure and blindness.
 - They should be concerned because of an increased chance of ADHD correlated with the stress of being obese.
- In developed countries, _____
 - lead poisoning continues to be one of the top causes of death during middle childhood
 - middle childhood is the least safe time of life because of an increased need for independence at this period in development
 - even children who do not receive vaccinations are less susceptible to fatal diseases in middle childhood than they were earlier in their development
 - rates of minor illnesses have increased during recent decades, even though rates of more serious illnesses have declined
- Which of the following is a risk factor for asthma?
 - Being male
 - Living in the Western part of the United States
 - Having French ancestry
 - Being underweight

Summary: Physical Development

LO 7.1 Identify the changes in physical and sensory development that take place during middle childhood.

In middle childhood physical growth continues at a slow but steady pace, about 2–3 inches (5–8 cm) per year in height and about 5–7 pounds (2½–3 kg) per year in weight. Children lose all 20 primary teeth and their permanent teeth begin to grow in. Ear health improves, but one-fourth of children become nearsighted during middle childhood.

LO 7.2 Explain how motor development advances in middle childhood and how these advancements are related to new skills and participation in games and sports.

Children's gross motor skills improve in middle childhood due to improved balance, increased strength, better coordination, greater agility, and faster reaction time. As their gross motor development advances, children improve their performance in a wide range of games and sports, and many of them participate in organized sports. Fine motor development reaches nearly an adult level at this age, and across cultures, advances are especially evident in two areas: drawing and writing.

LO 7.3 Describe the negative effects of both malnutrition and obesity on development, and identify the causes of obesity.

Studies have shown that better-nourished children are more energetic, less anxious, show more positive emotion, and

score higher than malnourished children on a wide range of cognitive measures in middle childhood. Across countries, rates of overweight and obesity are highest in the most affluent regions (North America and Europe) and lowest in the poorest regions (Africa and Southeast Asia). Obesity is a cultural phenomenon, and a variety of social and cultural changes have contributed to this problem, including diets with more fast food and high rates of television viewing. Genetics also make a contribution. Socially, being obese increases the likelihood that a child will be excluded and the object of ridicule by peers. Physically, obesity can result in diabetes in middle childhood, which eventually can lead to problems such as blindness, kidney failure, and stroke.

LO 7.4 Explain why rates of illness and injury are relatively low in middle childhood, and why rates of asthma have risen.

In both developed and developing countries, middle childhood is a time of unusually high physical well-being, with low rates of illnesses and diseases due to stronger immune systems, and the health of children has improved in recent years because of increased immunization rates and better public health policies. Rates of asthma have risen in developed countries due to carpets, pets, and airtight windows, and in developing countries due to worsening air pollution. Compared to younger children, children in middle childhood are more agile and better at anticipating situations that may cause injury.

Section 2 Cognitive Development

Learning Objectives

- Explain the major cognitive advances that occur during Piaget's concrete operations stage.
- Describe how attention and memory change from early childhood to middle childhood, and identify the characteristics of children who have ADHD.
- Describe the main features and critiques of intelligence tests, and compare and contrast Gardner's and Sternberg's approaches to conceptualizing intelligence.
- Identify the advances in vocabulary, grammar, and pragmatics during middle childhood.
- Explain the consequences for cognitive development of growing up bilingual.
- Summarize the variations worldwide in school enrollment, socialization practices, and academic achievement during middle childhood.
- Describe how reading and math skills develop from early childhood to middle childhood and the variations in approaches to teaching these skills.

COGNITIVE DEVELOPMENT: Theories of Cognitive Development

As we have seen in previous chapters, Piaget's approach and the information processing approach offer two different but complementary ways of understanding cognitive development. First we examine Piaget's ideas about concrete operations, then we discuss information processing advances in attention and memory.

Concrete Operations

LO 7.5 Explain the major cognitive advances that occur during Piaget's concrete operations stage.

If you grew up in a Western country, perhaps you believed in Santa Claus when you were a young child. According to the story, Santa Claus rides a sleigh borne by flying reindeer around the world on Christmas Eve, and at each house he comes down the chimney and delivers toys to all the good girls and boys. Do you remember when you stopped believing it? For most children, the story starts to seem far-fetched once they get to be 7 or 8 years old (Sameroff & Haith, 1996). How could one person make it all the way around the world in one night, even with flying reindeer? How could a large man make it down a narrow chimney, dragging a sack full of toys? And what if you don't have a chimney? The loss of belief in this myth reflects gains in cognitive development, as children develop a more true-to-life understanding of the world.

Middle childhood is when children develop a better grasp of what the physical world is really like and what is and is not possible. Recall from Chapter 6 that according to Piaget's theory of cognitive development, early childhood is the preoperational stage. In Piaget's view, children ages 2–6 are most notable cognitively for what they *cannot* do—they cannot perform mental operations—and for the kinds of mistakes they make.

Around age 7, children make an important cognitive advance toward becoming more systematic, planful, and logical thinkers. Piaget termed the cognitive stage from age 7 to 11 **concrete operations**. During this stage children become capable of using mental operations, which allow them to organize and manipulate information mentally instead of relying on physical and sensory associations. According to Piaget, the advances of concrete operations are evident in new abilities for performing tasks of conservation, classification, and seriation.

ADVANCES IN CONCRETE OPERATIONS As described in Chapter 6, prior to age 7 children usually make mistakes when performing tasks requiring an understanding of *conservation* (refer back to Learning Objective 6.6). Conservation is a key milestone of cognitive development because it enables the child to perceive regularities and principles in the natural world, which is the basis of being able to think logically about how the world works.

A second important cognitive achievement of concrete operations is *classification*. Although in early childhood young children can sort objects or events that share common characteristics into the same class—*red, round, sweet, dog*, for example—and can also combine classes into more general categories—elephants and rabbits are both part of the larger class “animals”—they run into difficulty when a classification problem requires a mental operation. For example, in one experiment, Piaget showed a 5-year-old boy a drawing of 12 girls and 2 boys, and this exchange followed (Piaget, 1965, p. 167):

Piaget: Are there more girls or more children?

Boy: More girls.

Piaget: But aren't the girls children?

Boy: Yes.

Piaget: Then are there more children or more girls?

Boy: More girls.

Amusing, no doubt, at your age, but if you think about it, answering this question requires a fairly challenging mental operation, at least for a 5-year-old. He must separate the girls and boys in the drawing into two classes (girls and boys), add them to form a larger class (children), and understand that the larger class (children) can be broken down again into each of its subclasses (girls and boys). Crucially, this must be done *mentally*. The number of girls can be compared to the number of boys visually, but comparing the number of children to the number of girls cannot, because girls are part of both categories. For this reason the 5-year-old trips up on the problem, but by age 8 or 9 most children perform this mental operation easily. In another experiment, Piaget interviewed a 9-year-old boy, showing him a drawing of 12 yellow tulips, 3 red tulips, and 6 daisies:

Piaget: Which would make a bigger bunch, all the tulips or the yellow tulips?

Boy: All the tulips, of course. You'd be taking the yellow tulips as well.

Piaget: And which would be bigger, all the tulips or all the flowers?

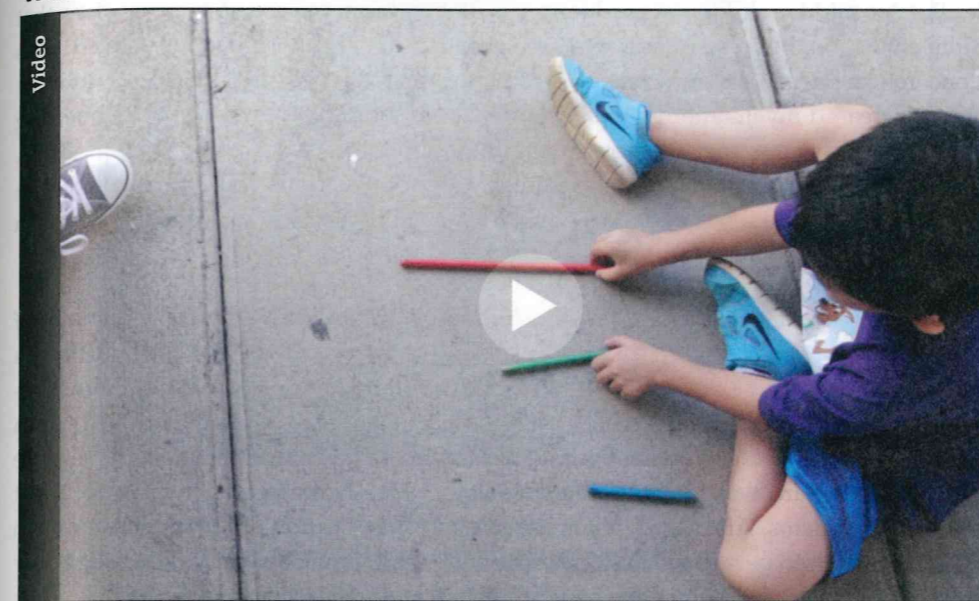
Boy: All the flowers. If you take all the flowers, you take all the tulips, too.

(Adapted from Ginsburg & Opper, 1979, p. 123)

Seriation, the third achievement of concrete operations emphasized by Piaget, is the ability to arrange things in a logical order (e.g., shortest to longest, thinnest to thickest, lightest to darkest). Piaget found that preoperational children have an incomplete grasp of concepts such as *longer than* or *smaller than*. For example, when asked to arrange a set of sticks from shortest to longest, children in the preoperational age period would

typically start with a short stick, then pick a long stick—but then pick another short stick, then another long stick, and so on. However, by age 7 most children can accurately arrange six to eight sticks by length. The video *Seriation* provides more examples of this.

Watch SERIATION



This kind of seriation task can be done visually—that is, it does not require a mental operation—but Piaget also found that during concrete operations children developed the ability to seriate mentally. Take this problem, for example. If Julia is taller than Anna and Anna is taller than Lynn, is Julia taller than Lynn? To get this right, the child has to be able to order the heights mentally from tallest to shortest: Julia, Anna, Lynn. Piaget considered the achievement of this skill of performing mental operations to be a key part of learning to think logically and systematically.

EVALUATING PIAGET'S THEORY As mentioned in Chapter 6, research testing Piaget's theory has found that, for concrete operations as for the preoperational stage, children are capable of performing some tasks at an earlier age than Piaget had claimed (Marti & Rodriguez, 2012; Vilette, 2002). However, for Piaget it was not enough for a child to grasp *some* aspects of conservation, classification, and seriation in order to be considered a concrete operational thinker; the child had to have *complete* mastery of the tasks associated with the stage (Piaget, 1965). Thus, the difference between Piaget and his critics on this issue is more a matter of definition—“What qualifies a child as a concrete operational thinker?”—than of research findings. Piaget also claimed that teaching children the principles of concrete operations would not work because their grasp of the principles of the stage has to occur naturally as part of their interaction with their environment (Piaget, 1965). Here his critics appear to be right, with many studies showing that with training and instruction, children under age 7 can learn to perform the tasks of concrete operations and also understand the underlying principles well enough to apply them to new tasks (Marti & Rodriguez, 2012; Parameswaran, 2003).

Transporting Piaget's tasks across cultures shows that acquiring an understanding of concrete operations depends on exposure to similar tasks and materials. For example, in one study of 4- to 13-year-old children in the Maya culture of Mexico and in Los Angeles, the children in Los Angeles performed better than the Mayan children on standard tests of concrete operations, whereas the Mayan children performed better on similar concrete operations tasks that involved materials used in weaving, because these materials were familiar from their daily lives (Maynard & Greenfield, 2003).

concrete operations

in Piaget's theory, the cognitive stage in which children become capable of using mental operations

seriation

ability to arrange things in a logical order, such as shortest to longest, thinnest to thickest, or lightest to darkest

Information Processing

LO 7.6 Describe how attention and memory change from early childhood to middle childhood, and identify the characteristics of children who have ADHD.

Ever try to play a board game with a 3-year-old? If you do, it better be short and simple. But by middle childhood, children can play a wide variety of board games that adults enjoy, too, because their powers of attention and memory have advanced. This is one reflection of how information processing improves during middle childhood. Due to increased myelination in the brain, especially of the corpus callosum connecting the two hemispheres, speed of processing information increases (Roeder et al., 2008). Consequently, the amount of time required to perform various tasks decreases in the course of middle childhood. Advances are also made in the two key areas of information processing: attention and memory.

ATTENTION AND ADHD In middle childhood, children become more capable of focusing their attention on relevant information and disregarding what is irrelevant, an ability termed **selective attention** (Goldberg et al., 2001; Janssen et al., 2014). For example, in one line of research, children of various ages were shown a series of cards, each containing one animal and one household item, and told to try and remember where the animal on each card was located (Hagen & Hale, 1973). Nothing was mentioned about the household items. Afterward, when asked about the location of the animals on each card, older children performed better than younger children. However, when asked how many of the household items they could remember, younger children performed better than older children. The older children were capable of focusing on the information they were told would be relevant, the location of the animals, and capable of ignoring the household items as irrelevant. In contrast, the poorer performance of the younger children in identifying the locations of the animals was partly due to being distracted by the household items.

Being able to maintain attention becomes especially important once children enter school at about age 6 or 7, because the school setting requires children to pay attention to their teachers' instructions. Children with especially notable difficulties in maintaining attention may be diagnosed with **attention-deficit/hyperactivity disorder (ADHD)**, which includes problems of inattention, hyperactivity, and impulsiveness. Children with ADHD have difficulty following instructions and waiting their turn. In the United States, it is estimated that 7% of children ages 4–10 are diagnosed with ADHD (National Resource Center on ADHD, 2014). Boys are over twice as likely as girls to have ADHD. The diagnosis is usually made by a pediatrician after evaluation of the child and consultation with parents and teachers (Sax & Kautz, 2003). Watch the video *A Boy Talks About Having ADHD* for a child's perspective on the disorder.

In the United States, nearly 9 of 10 children and adolescents diagnosed with ADHD receive Ritalin or other medications to suppress their hyperactivity and help them concentrate better (Kaplan et al., 2004). Medications are often effective in controlling the symptoms of ADHD, with 70% of children showing improvements in academic performance and peer relations (Prasad et al. 2013). However, there are concerns about side effects, including slower physical growth and higher risk of depression (Reeves & Schweitzer, 2004). Behavioral therapies are also effective, and the combination of medication and behavioral therapy is more effective than either treatment alone (American Academy of Pediatrics, 2005; Hoza et al., 2008).

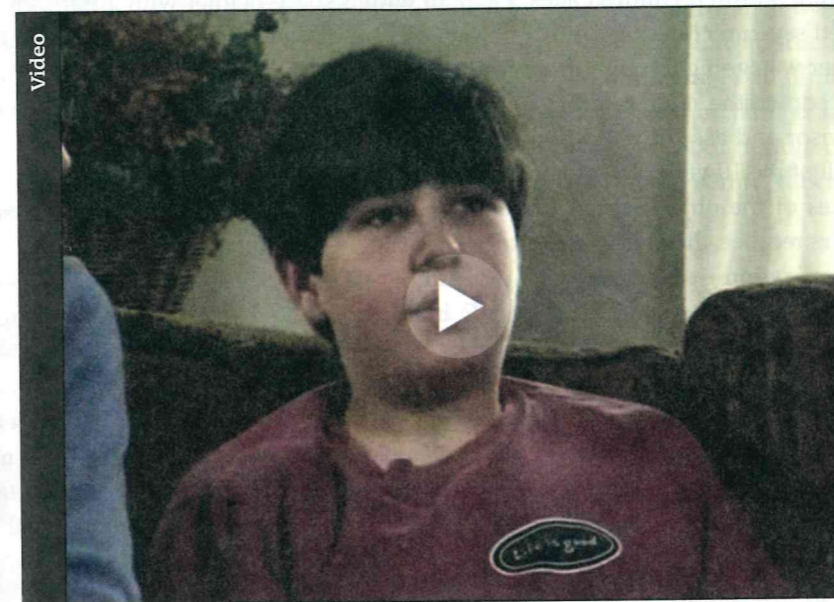
Although most research on ADHD has taken place in the United States, one large study of ADHD was completed in Europe, involving over 1,500 children and adolescents (ages 6–18) in 10 countries (Rotheberger et al., 2006). In this Attention-deficit/hyperactivity Disorder Observational Research in Europe (ADORE) study, pediatricians and child psychiatrists across Europe collected observational data on children and adolescents at

selective attention
ability to focus attention on relevant information and disregard what is irrelevant

attention-deficit/hyperactivity disorder (ADHD)

diagnosis that includes problems of inattention, hyperactivity, and impulsiveness

Watch A BOY TALKS ABOUT HAVING ADHD



seven time points over 2 years, with data including diagnosis, treatment, and outcomes. Parents also participated, and their assessments showed high agreement with the assessments of the pediatricians and child psychiatrists.

Like the American studies, ADORE found higher rates of ADHD among boys than among girls, but the ratios varied widely among countries, from 3:1 to 16:1 (Novik et al., 2006). Symptoms of ADHD were similar among boys and girls, but girls with ADHD were more likely than boys to have additional emotional problems and to be bullied by their peers, whereas ADHD boys were more likely than girls to have conduct problems. For both boys and girls, having ADHD resulted in frequent problems in their relations with peers, teachers, and parents (Coghill et al., 2006). Parents reported frequent stresses and strains due to children's ADHD behavior, including disruptions of family activities and worries about the future (Riley et al., 2006). In contrast to the American approach of relying heavily on Ritalin and other medications, the European approaches to treatment were diverse: medications (25%), psychotherapy (19%), combination of medications and psychotherapy (25%), other therapy (10%), and no treatment (21%) (Preuss et al., 2006).

MEMORY In early childhood, memory is often fleeting, as any parent can attest who has ever asked a 4-year-old what happened to those nice new mittens he wore out to play that morning. Mittens? What mittens?

In middle childhood the capacity of working memory enlarges. On memory tests for sequences of numbers, the length of the sequence recalled is just 4 numbers for the typical 7-year-old, but for the typical 12-year-old it has increased to 7, equal to adults (Kail, 2003). More importantly, middle childhood is the period when children first learn to use **mnemonics** (memory strategies) such as rehearsal, organization, and elaboration.

Rehearsal, which involves repeating the information over and over, is a simple but effective mnemonic. You probably use it yourself, for example, when someone tells you a phone number and you are trying to remember it between the time you hear it and the time you use it. In a classic study, John Flavell and his

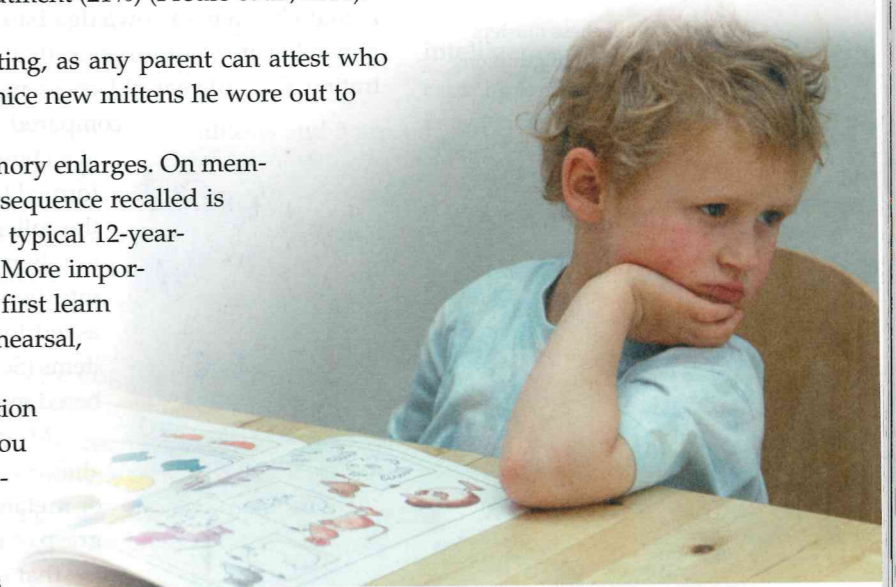
mnemonics

memory strategies, such as rehearsal, organization, and elaboration

rehearsal

mnemonic that involves repeating the same information over and over

ADHD is usually first diagnosed in middle childhood, when children are required to sit still for long periods in school.



colleagues (1966) showed how rehearsal emerges as a memory strategy in middle childhood. They outfitted children ages 5 and 10 with a space helmet with a dark visor and displayed seven pictures of familiar objects in front of them. Each child was told that the researcher was going to point to three objects that the child was to remember (in order), then pull down the space helmet visor so the child could not see for 15 seconds, and then lift the visor and ask the child to point to the three objects. During the 15-second delay, nearly all of the 10-year-olds but only a few of the 5-year-olds moved their lips or recited the names of the objects aloud, showing that they were using rehearsal. At each age, rehearsers recalled the objects much more accurately than non-rehearsers.

Organization—placing things into meaningful categories—is another effective memory strategy that is used more commonly in the course of middle childhood (Schneider, 2002). Studies typically test this ability by giving people a list of items to remember, for example, shoes, zebra, baseball, cow, tennis racket, dress, raccoon, soccer goal, hat. Numerous studies have shown that if children are given a list of items to remember, they are more likely to group them into categories—clothes, animals, sports items—in middle childhood than in early childhood (Sang et al., 2002). Organization is a highly effective memory strategy, because each category serves as a *retrieval cue* for the items within the category, so that if the category can be remembered, all the items within the category are likely to be remembered as well (Schneider, 2002).

A third mnemonic that comes into greater use in middle childhood is **elaboration**, which involves transforming bits of information in a way that connects them and hence makes them easier to remember (Terry, 2003). One example of this is the standard way of teaching children the lines of the treble clef in music, EGBDF: *Every Good Boy Does Fine*. Or, if you were going to the grocery store and wanted to remember to buy butter, lettuce, apples, and milk, you could arrange the first letters of each of the items into one word, *BLAM*. The word *BLAM* serves as a retrieval cue for the items represented by each letter of the word.

Although children are more likely to use organization and elaboration in middle childhood than in early childhood, even in middle childhood and beyond, relatively few people use memory strategies on a regular basis. Instead, they rely on more concrete, practical methods. In one study, children in kindergarten and 1st, 3rd, and 5th grade were asked how they would remember to bring their ice skates to a party the next day (Kreutzer et al., 1975). At all three ages, children came up with sensible approaches such as putting the skates where they would be easy to see, writing themselves a note, and tying a string to their finger.

Another reason why memory improves from early childhood to middle childhood is that children's knowledge base expands, and the more you know, the easier it is to remember new information that is related to what you know. In a classic study illustrating this, 10-year-old chess masters and college student novice chess players were compared in their ability to remember configurations of pieces on a chess board (Chi, 1978). The 10-year-old chess masters performed far better than the college student novices, even though the college students were better at recalling a series of random numbers. In another study, 9- and 10-year-olds were separated into two groups, soccer "experts" and soccer "novices," and asked to try to remember lists of soccer items and non-soccer items (Schneider & Bjorklund, 1992). The soccer experts remembered more items on the soccer list than on the non-soccer list.

Middle childhood is not only a time of advances in memory abilities but of advances in understanding how memory works, or **metamemory**. Even by age 5 or 6, most children have some grasp of metamemory (Kvavilashvili & Ford, 2014). They recognize that it is easier to remember something that happened yesterday than something that happened long ago. They understand

that short lists are easier to remember than long lists, and that familiar items are more easily remembered than unfamiliar items. However, their appraisal of their own memory abilities tends to be inflated. When children in early childhood and middle childhood were shown a series of 10 pictures and asked if they could remember all of them, more than half of the younger children but only a few older children claimed they could (none of them actually could!) (Flavell et al., 1970). In the course of middle childhood, children develop more accurate assessments of their memory abilities (Schneider & Pressley, 1997).

Intelligence and Intelligence Tests

LO 7.7 Describe the main features and critiques of intelligence tests, and compare and contrast Gardner's and Sternberg's approaches to conceptualizing intelligence.

Both the Piagetian approach and the information-processing approach describe general patterns of cognitive development and functioning, intended to apply to all children. However, at any given age there are also *individual differences* among children in their cognitive functioning. Within any group of same-age children, some will perform relatively high in their cognitive functioning and some relatively low. Even in infancy, toddlerhood, and early childhood, individual differences in cognitive development are evident, as children reach various cognitive milestones at different times, such as saying their first word. However, individual differences become more evident and more important in middle childhood, when children enter formal schooling and begin to be tested and evaluated on a regular basis.

In the study of human development, the examination of individual differences in cognitive development has focused mainly on measurements of **intelligence**. Definitions of intelligence vary, but it is generally understood to be a person's capacity for acquiring knowledge, reasoning, and solving problems (Sternberg, 2004). Intelligence tests usually provide an overall score of general intelligence as well as several subscores that reflect different aspects of intelligence.

Let us begin by looking at the characteristics of one of the most widely used intelligence tests, and follow with an exploration of the genetic and environmental sources of individual differences in intelligence. Then, we will consider two alternative ways of conceptualizing and measuring intelligence.

THE WECHSLER INTELLIGENCE TESTS The most widely used intelligence tests are the Wechsler scales, including the *Wechsler Intelligence Scale for Children (WISC-IV)* for ages 6 to 16 and the *Wechsler Adult Intelligence Scale (WAIS-IV)* for ages 16 and up.

The Wechsler scales consist of 11 subtests, of which 6 are Verbal subtests and 5 are Performance subtests. The results provide an overall **intelligence quotient**, or IQ score, which is calculated relative to the performance of other people of the same age, with 100 as the **median** score. The overall IQ can be broken down into a Verbal IQ score, a Performance IQ score, and scores for each of the 11 subtests. More detail on each of the subscales of the WISC-IV is provided in **Table 7.1** on the next page, so you can get an idea of what IQ tests really measure.

How accurate are the Wechsler IQ tests? IQ tests were originally developed to test children's abilities as they entered school, and IQ has proven to be a good predictor of children's school performance. One study of children in 46 countries found that across countries, IQ scores and school achievement scores were highly correlated (Lynn & Mikk, 2007). IQ scores are also quite good predictors of success in adulthood, as Chapter 10 will explore in more detail (Benbow & Lubinski, 2009).

However, IQ tests have been criticized on a variety of grounds. Critics have complained that IQ tests assess only a narrow range of abilities, and miss some of the most

organization

mnemonic that involves placing things mentally into meaningful categories

elaboration

mnemonic that involves transforming bits of information in a way that connects them and hence makes them easier to remember

metamemory

understanding of how memory works

Why do young chess masters remember chess configurations better than older novices do?



intelligence

capacity for acquiring knowledge, reasoning, and solving problems

intelligence quotient (IQ)

score of mental ability as assessed by intelligence tests, calculated relative to the performance of other people the same age

median

in a distribution of data, the score that is precisely in the middle, with half the distribution lying above and half below

Table 7.1 The WISC-IV: Sample Items

Verbal Subtests	
Information	General knowledge questions, for example, "Who wrote Huckleberry Finn?"
Vocabulary	Give definitions, for example, "What does formulate mean?"
Similarities	Describe relationship between two things, for example, "In what ways are an apple and an orange alike?" and "In what ways are a book and a movie alike?"
Arithmetic	Verbal arithmetic problems, for example, "How many hours does it take to drive 140 miles at a rate of 30 miles per hour?"
Comprehension	Practical knowledge, for example, "Why is it important to use zip codes when you mail letters?"
Digit Span	Short-term memory test. Sequences of numbers of increasing length are recited, and the person is required to repeat them.
Performance Subtests	
For all the performance tests, scores are based on speed as well as accuracy of response.	
Picture arrangement	Cards depicting various activities are provided, and the person is required to place them in an order that tells a coherent story.
Picture completion	Cards are provided depicting an object or scene with something missing, and the person is required to point out what is missing (for example, a dog is shown with only three legs).
Matrix reasoning	Patterns are shown with one piece missing. The person chooses from five options the one that will fill in the missing piece accurately.
Block design	Blocks are provided with two sides all white, two sides all red, and two sides half red and half white. A card is shown with a geometrical pattern, and the person must arrange the blocks so that they match the pattern on the card.
Digit symbol	At top of sheet, numbers are shown with matching symbols. Below, sequences of symbols are given with an empty box below each symbol. The person must place the matching number in the box below each symbol.

important aspects of intelligence, such as creativity. IQ tests have also been attacked as culturally biased, because some of the vocabulary and general knowledge items would be more familiar to someone who was part of the middle-class culture (Ogbu, 2002). However, attempts to develop "culture-fair" tests have found the same kinds of group differences as standard IQ tests have found (Johnson et al., 2008). It may not be possible to develop a culture-fair or culture-free IQ test, because by the time people are able to take the tests (age 6) their cognitive development has already been shaped by living in a particular cultural and social environment. Although IQ tests aspire to test raw intellectual abilities, this would not really be possible unless everyone was exposed to essentially the same environment in the years before taking the test, which is obviously not the case. However, new approaches to studying intelligence have provided important insights into the relation between genetics and environment in performance on IQ tests, as we will discuss next.

INFLUENCES ON INTELLIGENCE IQ scores for a population-based sample usually fall into a **normal distribution**, or *bell curve*, in which most people are near the middle of the distribution and the proportions decrease at the low and high extremes, as shown in **Figure 7.4**. Persons with IQs below 70 are classified as having **intellectual disability**, and those with IQs above 130 are classified as **gifted**. But what determines whether a person's score is low, high, or somewhere in the middle? Is intelligence mainly an inherited trait, or is it shaped mainly by the environment?

As noted in Chapter 2, social scientists increasingly regard the old nature-nurture debates as sterile and obsolete. Nearly all accept that both genetics and environment are involved in development, including in the development of intelligence. A variety of new findings presented in the past 20 years provide insights into how genetics and environments interact and how both contribute to intelligence. Most of these studies use the

normal distribution

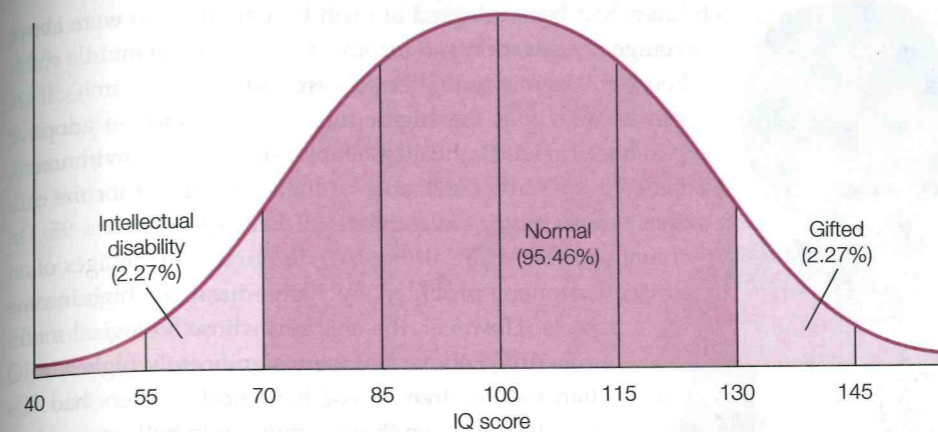
typical distribution of characteristics of a population, resembling a bell curve in which most cases fall near the middle and the proportions decrease at the low and high extremes

intellectual disability

level of cognitive abilities of persons who score 70 or below on IQ tests

gifted

in IQ test performance, persons who score 130 or above

**Figure 7.4** Bell Curve for Intelligence

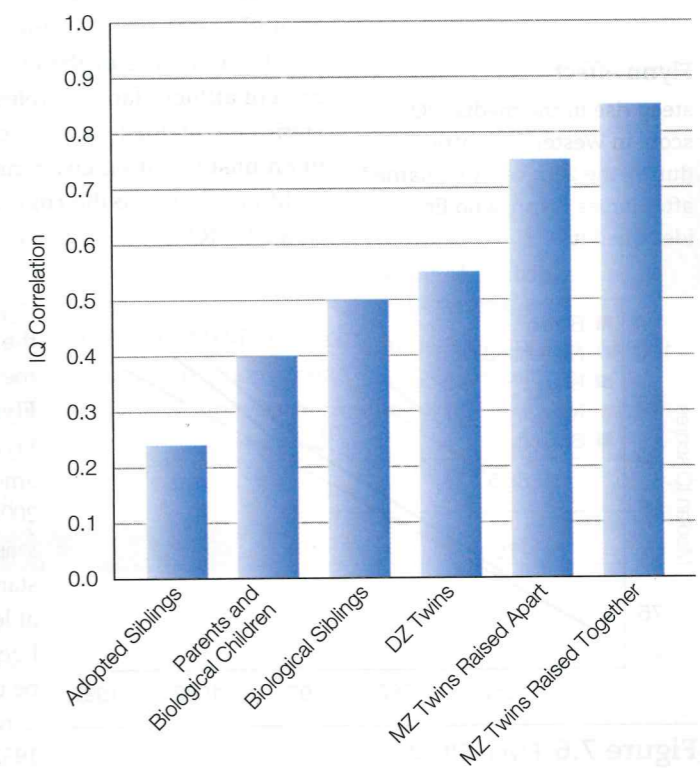
IQ scores for a population-based sample usually fall into this kind of pattern.

natural experiments of adoption studies or twin studies in order to avoid the problem of passive genotype → environment effects. When parents provide both genetics and environment, as they do in most families, it is very difficult to judge the relative contribution of each. Adoption and twin studies help unravel that tangle.

One important conclusion from adoption and twin studies is that the more two people in a family are alike genetically, the higher the correlation in their IQs (Brant et al., 2009). As shown in **Figure 7.5**, adopted siblings, who have none of their genotype in common, have a relatively low correlation for IQ, about .24. The environmental influence is apparent—ordinarily, the correlation between two genetically unrelated children would be zero—but limited. Parents and their biological children, who share half of their genotype in common, are correlated for IQ at about .40, slightly higher if they live together than if they live apart. The correlation for biological siblings is higher, about .50, and slightly higher still for DZ twins. Biological siblings and DZ twins share the same proportion of their genotype in common as parents and biological children do (again, about half), so the greater IQ similarity in DZ twins must be due to greater environmental similarity, from the womb onward. The highest IQ correlation of all, about .85, is among MZ twins, who have exactly the same genotype. Even when they are adopted by separate families and raised apart, the correlation in IQ scores of MZ twins is about .75 (Brant et al., 2009).

The results of these studies leave little doubt that genetics contribute strongly to IQ scores. It is especially striking that the correlation in IQ is much lower for adopted siblings, who have grown up in the same family and neighborhood and attended the same schools, than it is for MZ twins who have been raised separately and have never even known each other.

However, other adoption studies show that both environment and genetics have a strong influence on intelligence. In one study, researchers recruited a sample of adopted children whose biological mothers were at two extremes, either IQ under 95 or above 120 (remember, 100 is the median population IQ) (Loehlin et al., 1997). All the

**Figure 7.5** IQ and Genetics

The closer the genetic relationship, the higher the correlation in IQ. SOURCE: Based on Brant et al. (2009).



Identical twins have similar IQs, even when reared apart. Here, 6-year-old MZ twin sisters in Thailand smile for the camera.

children had been adopted at birth by parents who were above average in education and income. When tested in middle childhood, children in both groups were above average in IQ. If we can assume that the high-education, high-income adoptive parents provided a healthy, stable, stimulating environment, this shows a strong influence of the environment for the children whose biological mothers all had IQs less than 95. On average they were above 100, due to the advantages of an environment provided by high-education, high-income parents. However, the children whose biological mothers had IQs above 120 were significantly higher in IQ than the children whose biological mothers had IQs less than 95, even though children in both groups had an advantaged environment, which showed the substantial influence of genetics.

Taken together, the adoption and twin IQ studies show that both genetics and environment contribute to the development of intelligence. Specifically, every child has a genetically based *reaction range* for intelligence, meaning a range of possible developmental paths (refer back to Learning Objective 2.4). With a healthy, stimulating environment, children reach the top of their reaction range for intelligence; with a poor, unhealthy, or chaotic environment, children are likely to develop a level of intelligence toward the bottom of the reaction range. There is both an upper and a lower limit to the reaction range. Even with an optimal environment, children with relatively low intellectual abilities are unlikely to develop superior intelligence; even with a subnormal environment, children with relatively high intellectual abilities are unlikely to end up well below average in IQ.

Recent research has revealed new insights into the intricate relations between genetics and environment in the development of intelligence. Specifically, research indicates that the influence of the environment on IQ is stronger for poor children than for children of affluent families (Nesbitt, 2009; Turkheimer et al., 2009). The less stimulating the environment, the less genetics influence IQ, because children's potentials are suppressed in an unstimulating environment. In contrast, an affluent environment generally allows children to receive the cognitive stimulation necessary to reach the top of their reaction range for IQ.

One other highly important finding that attests to the importance of environmental influences on intelligence is that the median IQ score in Western countries rose dramatically in the course of the 20th century, a phenomenon known as the **Flynn effect**, named for the scholar who first noted it, James Flynn (1999, 2012). From 1932 to 1997 the median IQ score among children in the United States rose by 20 points (Howard, 2001). This is a huge difference. It means that a child whose IQ was average in 1932 would be way below average by today's standard. It means that half of children today would have scored at least 120 by 1932 scoring, placing them in the "superior intelligence" range, and about one fourth of children today would be considered by 1932 standards to have "very superior intelligence"—a classification actually held by only 3% of children in 1932 (Horton, 2001). As shown in **Figure 7.6**, similar results have been found in other countries as well (Flynn, 1999, 2012).

What explains the Flynn effect? The causes must be environmental, rather than genetic; the genes of the human

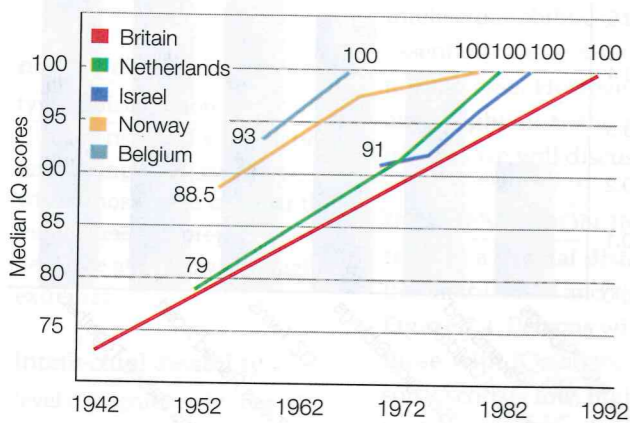


Figure 7.6 Flynn Effect

IQ scores rose across developed countries in the late 20th century.

SOURCE: Flynn (1999)

population could not have changed so dramatically in such a short time. But what about the environment improved so much in the course of the 20th century that would explain such a dramatic rise in median IQ scores? Several possibilities have been identified (Rodgers & Wanstrom, 2007). Prenatal care is better now than in the early 20th century, and better prenatal care leads to better intellectual development, including higher IQs. Families are generally smaller now than in the early 20th century, and in general the fewer children in a family, the higher their IQs. Far more children attend preschool now than was true in 1932, and preschool enhances young children's intellectual development. It has even been suggested that the invention of television may be one of the sources of the Flynn effect. Although television and other media are often blamed for societal ills, there is good evidence that watching educational television enhances young children's intellectual development (Scantlin, 2007).

An especially persuasive explanation has recently been proposed: the decline of infectious diseases (Eppig et al., 2010). Christopher Eppig and his colleagues note that the brain requires a great deal of the body's physical energy—87% in newborns, nearly half in 5-year-olds, and 25% in adults. Infectious diseases compete for this energy by activating the body's immune system and interfering with the body's processing of food during years when the brain is growing and developing rapidly. If this explanation is true, there should be an inverse relationship between IQ and infectious disease rates, and this pattern was evident in the researchers' analysis of data from 113 countries (as shown in **Figure 7.7**). The higher a country's infectious disease burden, the lower the country's median IQ. Thus the Flynn effect may have been primarily due to the elimination of major infectious diseases in developed countries. A Flynn effect of the future may be awaiting developing countries as they reduce and eliminate infectious diseases.

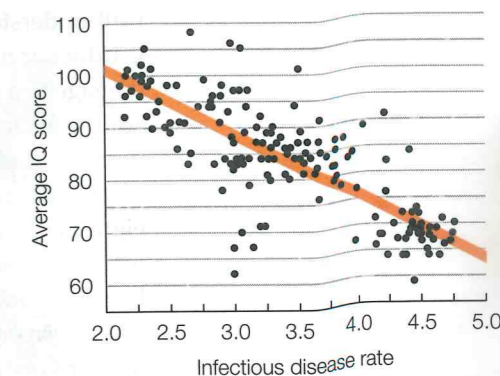


Figure 7.7 Inverse Relation Between IQ and Disease

Could this explain the Flynn effect?
SOURCE: Eppig et al. (2010)

OTHER CONCEPTIONS OF INTELLIGENCE: GARDNER'S AND STERNBERG'S THEORIES

IQ testing has dominated research on children's intellectual development for nearly a century. However, in recent decades alternative theories of intelligence have been proposed. These theories have sought to present a conception of intelligence that is much broader than the traditional one. Two of the most influential alternative theories of intelligence have been presented by Howard Gardner and Robert Sternberg.

Gardner's (1983, 2004) **theory of multiple intelligences** includes eight types of intelligence (see **Table 7.2**). In Gardner's view only two of them, *linguistic* and *logical-mathematical* intelligences, are evaluated by intelligence tests. The other intelligences are *spatial* (the ability to think three-dimensionally); *musical*; *bodily-kinesthetic* (the kind that athletes and dancers excel in); *naturalist* (ability for understanding natural phenomena); *interpersonal* (ability for understanding and interacting with others); and *intrapersonal*

theory of multiple intelligences

Gardner's theory that there are eight distinct types of intelligence

Table 7.2 Gardner's Theory of Multiple Intelligences

Type of Intelligence	Description
Linguistic	Ability to use language
Musical	Ability to compose and/or perform music
Logical/mathematical	Ability to think logically and to solve mathematical problems
Spatial	Ability to understand how objects are oriented in space
Bodily-kinesthetic	Speed, agility, and gross motor control.
Interpersonal	Sensitivity to others and understanding motivation of others
Intrapersonal	Understanding of one's emotions and how they guide actions
Naturalist	Ability to recognize the patterns found in nature

(self-understanding). As evidence for the existence of these different types of intelligence, Gardner argues that each involves distinct cognitive skills, that each can be destroyed by damage to a particular part of the brain, and that each appears in extremes in geniuses as well as in *idiots savant* (the French term for people who are low in general intelligence but possess an extraordinary ability in one specialized area).

Gardner argues that schools should give more attention to the development of all eight kinds of intelligence and design programs that would be tailored to each child's individual profile of intelligences. He has proposed methods for assessing different intelligences, such as measuring musical intelligence by having people attempt to sing a song, play an instrument, or orchestrate a melody (Gardner, 1999, 2011). However, thus far neither Gardner nor others have developed reliable and valid methods for analyzing the intelligences he proposes. Gardner has also been criticized for extending the boundaries of intelligence too widely. When an adolescent displays exceptional musical ability, is this an indication of musical "intelligence" or simply of musical talent? Gardner himself has been critical of the concept of "emotional intelligence" proposed by Daniel Goleman and others (Goleman, 1997), arguing that the capacity to empathize and cooperate with others is better viewed as "emotional sensitivity" rather than intelligence (Gardner, 1999). However, Gardner is vulnerable to a similar criticism for proposing "interpersonal" and "intrapersonal" intelligences. Gardner (2011) is continuing to develop his theory and methods to assess it.

triarchic theory of intelligence

Sternberg's theory that there are three distinct but related forms of intelligence

Is musical ability a type of intelligence?

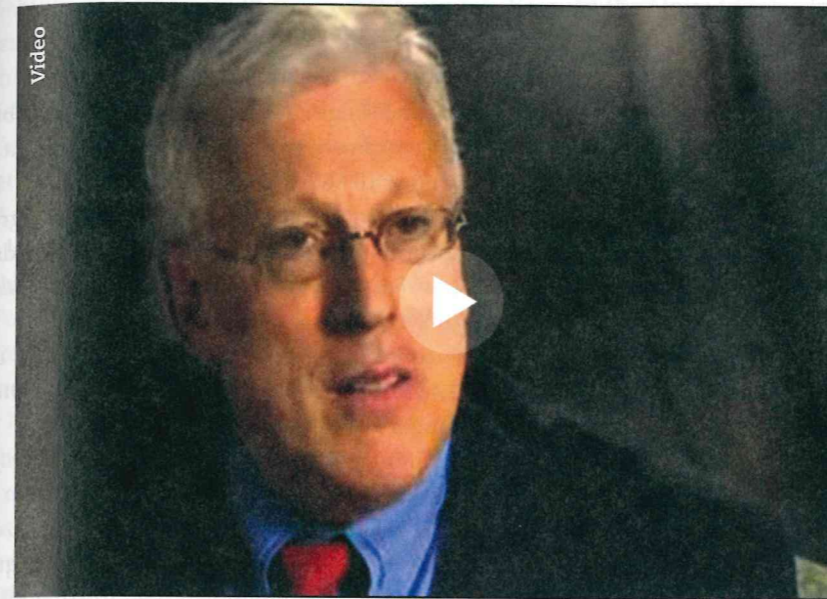
CRITICAL THINKING QUESTION

Do you agree that all the mental abilities described by Gardner are different types of intelligence? If not, which types would you remove? Are there other types you would add?

Sternberg's (1983, 1988, 2002, 2003, 2005) **triarchic theory of intelligence** includes three distinct but related forms of intelligence. *Analytical intelligence* is Sternberg's term for the kind of intelligence that IQ tests measure, which involves acquiring, storing, analyzing, and retrieving information. *Creative intelligence* involves the ability to combine information in original ways to produce new insights, ideas, and problem-solving strategies. *Practical intelligence* is the ability to apply information to the kinds of problems faced in everyday life, including the capacity to evaluate social situations. Sternberg has conducted extensive research to develop tests of intelligence that measure the three types of intelligence he proposes. These tests involve solving problems, applying knowledge, and developing creative strategies. Sternberg's research on Americans has demonstrated that each person has a different profile on the three intelligences that can be assessed (Sternberg, 2005, 2007). He proposes that the three components are universal and contribute to intelligent performance in all cultures (Sternberg, 2005), but so far the theory has been tested little outside the United States. Neither Sternberg's nor Gardner's tests are widely used among psychologists, in part because they take longer to administer and score than standard IQ tests do.

The underlying issue in judging alternative theories of intelligence is the question of how intelligence should be defined. If intelligence is defined simply as the mental abilities required to succeed in school, the traditional approach to conceptualizing and measuring intelligence is generally successful. However, if one wishes to define intelligence more broadly, as the entire range of human mental abilities, the traditional approach may be seen as too narrow, and an approach such as Gardner's or Sternberg's may be preferred. For a thoughtful perspective on how differently cultures may conceptualize intelligence, see the video *Robert Sternberg on Cultural Influences*.

Watch ROBERT STERNBERG ON CULTURAL INFLUENCES



Practice Quiz

ANSWERS AVAILABLE IN ANSWER KEY.

- Maurice is 8 years old and is shown two round balls of clay that are equal in size. He watches as the experimenter rolls one ball into a long sausage shape. When asked, "Which has more clay?" he will likely reply _____.
 - the ball
 - the long one that looks like a sausage
 - I'm not sure; I'll need to weigh them
 - they're both the same
- Marina is 9 years old and is capable of concrete operational thought. Like most other children her age, she should _____.
 - fail the three mountain task, but pass the abstract thinking task
 - still have great difficulty with seriation tasks, such as arranging items from shortest to longest
 - be able to organize and manipulate information mentally
 - think in terms of hypotheticals
- Research on ADHD _____.
 - has found similar treatments utilized across the various countries that have been studied
 - has found that less than half of children diagnosed with this disorder in the United States receive medication
 - has shown that like the American studies, studies in other countries found higher rates among boys than among girls
 - has shown that two of the most common side effects of medication are weight gain and stuttering
- Selective attention _____.
 - refers to the placement of things into meaningful categories
 - refers to thinking about thinking
 - refers to focusing on the relevant stimuli, while ignoring what is irrelevant
 - is a common measure of intelligence
- Both Gardner's and Sternberg's theory of intelligence propose _____.
 - that there are multiple components of intelligence
 - that there are three different types of intelligence
 - that creativity is genetically determined
 - an IQ score that allows comparisons among individuals

COGNITIVE DEVELOPMENT: Language Development

In middle childhood, advances in language development may not be as noticeable as in the earliest years of life, but they are nevertheless dramatic. There are important advances in vocabulary, grammar, and pragmatics. Bilingual children face special challenges in language development but also benefit in some ways.

Vocabulary, Grammar, and Pragmatics

LO 7.8 Identify the advances in vocabulary, grammar, and pragmatics during middle childhood.

Once they enter formal school at age 5–7 and begin reading, children’s vocabulary expands as never before, as they pick up new words not just from conversations but from books. At age 6 the average child knows about 10,000 words, but by age 10 or 11 this sum has increased fourfold, to about 40,000 (Fitneva & Matsui, 2015). Part of this growth comes from children’s growing abilities to understand the different forms words can take. A child who learns the meaning of *calculate* will also now understand *calculating*, *calculated*, *calculation*, and *miscalculate* (Anglin, 1993).

The grammar of children’s language use becomes more complex in middle childhood. For example, they are more likely than younger children to use *conditional sentences* such as “If you let me play with that toy, I’ll share my lunch with you.”

Another important aspect of language that improves in middle childhood is *pragmatics*, the social context and conventions of language. As noted in Chapter 6, even in early childhood children have begun to understand pragmatics. For example, they realize that what people say is not always just what they mean, and that interpretation is required. They understand that “How many times do I have to tell you not to feed the dog off your plate?” is not really a math question. However, in middle childhood the understanding of pragmatics grows substantially (Ishihara, 2014). This can be seen vividly in children’s use of humor. A substantial amount of humor in middle childhood involves violating the expectations set by pragmatics. For example, here is an old joke that made my son Miles howl with laughter when he first learned it at age 8:

Man: “Waiter, what’s that fly doing in my soup?”

Waiter: “I believe he’s doing the backstroke, sir.”

For this to be funny, you have to understand pragmatics. Specifically, you have to understand that by asking “What’s that fly doing in my soup?” the man means “What are you going to do about that disgusting fly?” The waiter, a bit slow on his pragmatics, interprets the man to mean, “What activity is that fly engaged in?” What makes it funny is that your understanding of pragmatics leads you to expect the first response, and the second response comes as a surprise. By substituting the expected pragmatic meaning of the question with an unexpected meaning, the joke creates a humorous effect (at least if you are 8 years old).

Pragmatics are always culturally grounded, which is one reason why jokes don’t travel well between cultures. To know the pragmatics of a language, you have to know well the culture of the people using the language. For example, many languages have two forms of the word “you,” one form used when there is a close attachment (such as with family and close friends) and the other used with unfamiliar persons and persons with whom there is a professional but not personal relationship (such as employers or students). Knowing when and with whom to use each form of “you” requires extensive familiarity not just with the language but with the cultural norms for using the two forms in the appropriate social contexts.

Bilingualism

LO 7.9 Explain the consequences for cognitive development of growing up bilingual.

A rising number of children around the world grow up knowing two languages; that is, they are **bilingual**. There are two main reasons for this trend. First, with increased migration between countries, children are more likely to be exposed early to two languages, one spoken at home and one spoken with friends, teachers, and others outside the home.

bilingual

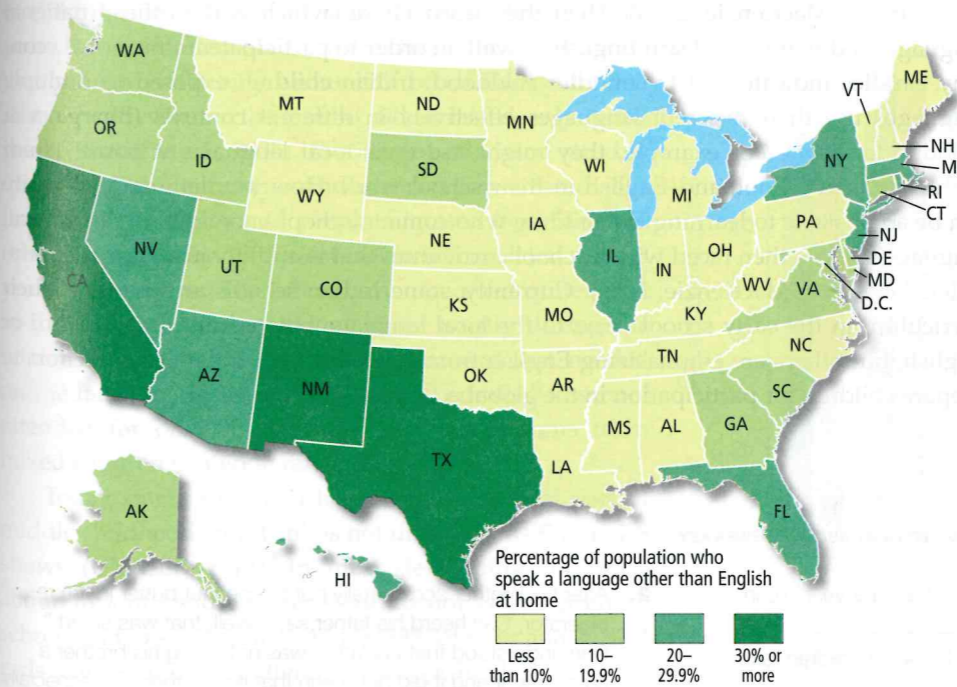
capable of using two languages

Second, school systems increasingly seek to teach children a second language to enhance their ability to participate in the global economy. Because the United States is the most influential country in the world economy, English is the most common second language for children around the world. For example, in China all children now begin learning English in primary school (Chang, 2008). There are many bilingual families living within the United States as well, due to the large number of immigrants that have come to the United States in recent decades, and they speak a variety of languages (see Map 7.1).

As we have seen in previous chapters, children are marvelously well-suited to learning a language. But what happens when they try to learn two languages? Does learning two languages enhance their language development or impede it?

For the most part, becoming bilingual is favorable to language development. When children learn two languages, they usually become adept at using both (Baker, 2011; Ishihara, 2014). Learning a secondary language does not interfere with mastering the primary language (Lessow-Hurley, 2005). One minor problem that does arise is that in early childhood there is sometimes a tendency to intermix the syntax of the two languages. For example, in Spanish dropping the subject in a sentence is grammatically correct, as in *no quiero ir*. However, if a child who is bilingual in Spanish applies this rule to English it comes out as *no want go*, which is not correct. By middle childhood, children can easily keep their two languages separate, although they may intentionally import some words from one language when speaking in the other, to create “Spanglish” (a blend of Spanish and English) or “Chinglish” (a blend of Chinese and English), for example.

When children learn their second language after already becoming fluent in a first language, it takes longer to master the second language, usually 3–5 years (Baker, 2011; Hakuta, 1999). Even so, learning a second language comes much easier in early and middle childhood than it does at later ages. For example, in one study, adults who had immigrated to the United States from China or Korea at various ages were tested on their grammatical knowledge of English (Johnson & Newport, 1991). The participants who had arrived in the United States in early or middle childhood scored as well on the test as native English speakers, but beyond middle childhood, the older the age at immigration,



Map 7.1 Bilingualism in the United States

Which states have the highest percentage of bilingual families? How might this relate to the ethnic diversity that exists within these states?



Many Indian children learn several languages.

the less the person's grammatical knowledge. Other studies have shown that beyond the age of about 12 it is difficult for people to learn to speak a new language without a noticeable accent (Birdsong, 2006). Clearly, children have a biological readiness for learning a new language that adults lack, but the decline in this ability is gradual and steady from childhood to adulthood.

Becoming bilingual has a variety of benefits. Children who are bilingual have better **metalinguistic skills** than single-language children, meaning that they have greater awareness of the underlying structure of language (Schwartz et al., 2008). In one early study (Oren, 1981), researchers compared bilingual and single-language children ages 4–5 on metalanguage skills by instructing them to use nonsense words for familiar objects (e.g., *dimp* for dog, *wug* for car) and by asking them questions about the implications of changing object labels (if we call a dog a cow, does it give milk?). The bilingual children were consistently better than the single-language children in metalanguage understanding. Specifically, they were better at applying grammatical rules to nonsense words (one *wug*, two *wugs*) and at understanding that words are symbols for objects (calling a dog a cow won't make it give milk). Other studies have confirmed that bilingual children are better than single-language children at detecting mistakes in grammar and meaning (Baker, 2011; Bialystok, 1993, 1997). Bilingual children also score higher on more general measures of cognitive ability, such as analytical reasoning, cognitive flexibility, and cognitive complexity, indicating that becoming bilingual also has general cognitive benefits (Bialystok, 1999, 2001; Swanson et al., 2004).

In some countries, such as India, many children are not just bilingual but **multilingual**. Indian children first learn their local language, of which there are over a thousand across India (MacKenzie, 2009). Then they learn Hindi, which is the official national language, and many also learn English as well, in order to participate in the global economy. Studies indicate that by middle childhood, Indian children exposed to multiple languages use their different languages effectively in different contexts (Bhargava & Mendiratta, 2007). For example, they might use their local language at home, Hindi with friends at school, and English in their school work. However, language diversity can be an obstacle to learning for children who come to school knowing only their local language and are then faced with a school curriculum that is entirely in a new and unfamiliar language (MacKenzie, 2009). Currently, some Indian schools are changing their curriculum in the early school years to the local language before introducing Hindi or English, but others are emphasizing English from the outset of schooling in an effort to prepare children for participation in the global economy.

metalinguistic skills

in the understanding of language, skills that reflect awareness of the underlying structure of language

multilingual

capable of using three or more languages

Practice Quiz

ANSWERS AVAILABLE IN ANSWER KEY.

- Compared to her brother in first grade, Fari, a 9-year-old in fourth grade, will be MORE likely to _____.
 - have trouble understanding jokes because children take everything literally at this age
 - use fewer conditional sentences because children are aware that others may misinterpret them
 - realize that what people say is not always what they mean
 - use longer sentences, but with less complex grammar
- After his brother accidentally put the peanut butter in the refrigerator, Carl heard his father say, "Well, that was smart." Carl understood that his father was not giving his brother a compliment and it did not mean that his brother was especially intelligent. This is an example of increased understanding of _____.
 - pragmatics
 - conditional sentences
 - the past imperfect tense
 - decentering

- Children who are bilingual _____.
 - are usually behind their single-language counterparts in meta-linguistic skills
 - take longer to master the second language when they learn it after already becoming fluent in the first language
 - learn the second language better after age 12 because they have a more sophisticated understanding of syntax by this point in development
 - score lower on tests of metalinguistic skills, but higher on IQ tests

- S. grew up in Shanghai, China; one cousin grew up in Japan, and another grew up in Italy. It is most likely that all three learned _____ as their second language.
 - French
 - German
 - English
 - Spanish

COGNITIVE DEVELOPMENT: School in Middle Childhood

In most of the world today, the daily lives of children in middle childhood are oriented around school. School is where they begin to gain the cognitive skills, especially in reading and math, that will enable them to participate economically in adult life.

School Experiences and Achievement

LO 7.10 Summarize the variations worldwide in school enrollment, socialization practices, and academic achievement during middle childhood.

For people who have grown up in a place where going to school is a routine part of children's development in middle childhood, it is easy to assume that this has always been the case. Indeed, many developmental psychologists refer to children in middle childhood as "school-age children," as if going to school is a natural, universal, and inevitable part of children's development once they reach the age of 6 or 7. However, attending school has been a typical part of children's lives in most countries only for less than 200 years. In the United States, for example, it is estimated that prior to 1800 only about half of children attended school, and even for those who did, it lasted only a few years (Rogoff et al., 2005). Enrollment increased steadily over the 19th century, as industrialization created jobs that required literacy and people migrated from farms to urban areas, and by 1900 most children completed several years of schooling. The school year remained quite short in the late 19th century, taking place mostly during the winter months, when children's labor was not needed on the farm. In 1870, the average child enrolled in school attended for only 78 days per year. Classrooms often mixed children of a wide range of ages.

Today, going to school has become a typical part of middle childhood, but it still is not universal, as **Figure 7.8** shows (UNICEF, 2014). In most developing countries, about 18% of children ages 6–10 do not attend primary school, and in sub-Saharan Africa, 23% of boys and 21% of girls ages 6–10 do not attend. However, in all developing countries, primary school enrollment has risen steeply in recent decades.

In many developing countries, the change to a school-oriented daily life in middle childhood has been

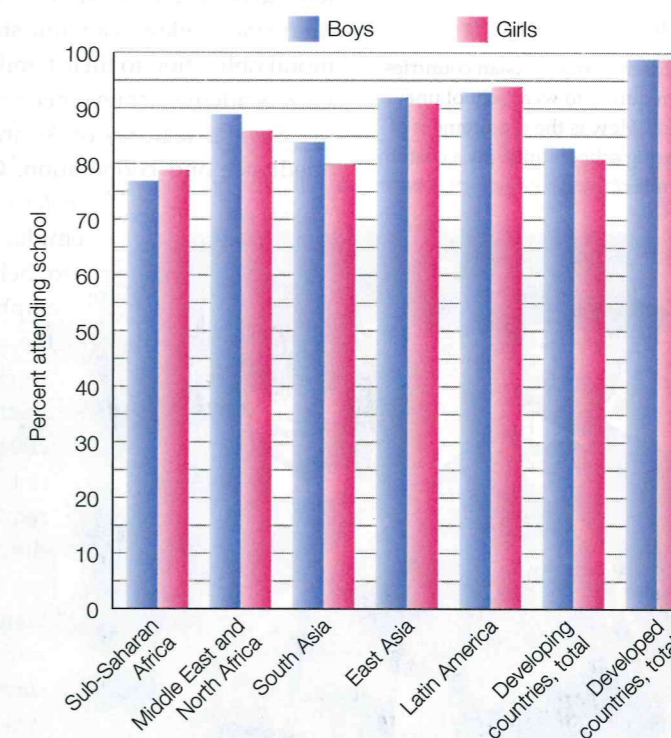


Figure 7.8 Primary School Attendance in World Regions

Attending primary school is common but not universal, worldwide.
SOURCE: Based on UNICEF (2014)

Table 7.3 From Work to School in One Generation: Guatemalan Children and Parents

	Parents %	Children %
Girls learn weaving	87	0
Boys learn to care for younger children	53	7
Boys do farm work	57	36
Expect education beyond Grade 6 (boys)	7	71
Expect education beyond Grade 6 (girls)	3	76
Expect to weave as adults (girls)	43	15
Expect to do farm work as adults (boys)	77	22

SOURCE: Based on Rogoff et al. (2005)

swift (Gaskins, 2015). For example, in Guatemala, Barbara Rogoff has been conducting ethnographic research in the same village for over 30 years. Over the course of just one generation, children's experiences were transformed (see Table 7.3; Rogoff et al., 2005). For example, not a single village girl today has learned weaving, even though nearly all of their mothers weaved as girls. For boys, the percentage who helped care for younger children dropped from 53% to 7% in just one generation. The percentage of boys helping with farm work also dropped from the parents' generation to the current generation. Because they now spend most of the day in school, girls no longer learn weaving, and boys are no longer available for farm work.

The change in children's focus from work to school was reflected in the change in their aspirations. In the parents' generation, few expected as children to continue education past Grade 6; for today's children, about three-fourths expect to go beyond Grade 6, and over half expect to go beyond Grade 12. Both boys and girls today envisioned a wider range of future occupations than their parents could have imagined, including accountant, teacher, pastor, and doctor.

A great deal of research has focused on comparisons between schools in the United States and in Asian countries such as Japan, China, and South Korea. These Asian countries have cultural traditions going back over 2 millennia emphasizing the importance and value of education, and the traditions remain strong today. High standards are applied to all children, as people in these countries believe that educational success is derived mainly from hard work and any child can succeed who tries hard enough (Stevenson et al., 2000; Sun et al., 2013). The same beliefs are characteristic of Asian American families (Fuligni et al., 2005). In contrast, most other Americans tend to believe that educational success is due mainly to innate ability, so when a child does poorly they tend to believe there is not much that can be done. Another difference is that Asian children tend to view academic striving as something they do not just for themselves but as a moral obligation to their families (Sun et al., 2013). In contrast, American children tend to view academic achievement as a mark of individual success.

Several features of Asian schools reflect collectivistic cultural beliefs emphasizing obedience and cooperation. Children are required to wear uniforms, a classic *custom complex* (see Chapter 1) underscoring diminished individuality and emphasizing conformity to the group. Children are also required to help to maintain the cleanliness and order of the school, emphasizing the collectivistic cultural value of contributing to the well-being of the community. Furthermore, children often work in groups, with students who have mastered a concept instructing those who have yet to grasp it (Shapiro & Azuma, 2004). In contrast, children in American schools typically do not wear uniforms (except in some private schools), are not required to help with school maintenance, and spend more time working alone (Stevenson & Zusho, 2002).

There are other important differences between the United States and Asian countries in the structure of the school day and year. Asian children spend more time on a typical school day learning academic subjects than American children do; Americans spend only about half as much of their school time in academic activities as children in China and Japan do, and spend more school time in art, music, and sports (Shapiro & Azuma, 2004). Both the school day and the school year are

longer in Asian countries. The school year in the United States is 180 days, compared to 220 in South Korea and 245 in China (Luckie, 2010).

How are these differences in school socialization and structure related to children's academic performance? In recent years, several excellent cross-national studies of academic performance have been conducted at regular intervals, including the Progress in International Reading Literacy Study (PIRLS) and the Trends in International Mathematics and Science Study (TIMSS). On the basis of these results, it appears that academic performance in 4th grade is related mainly to countries' economic development rather than to differences in cultural beliefs and (consequently) in educational practices (NCES, 2013). The highest-performing countries have widely varying educational approaches, but they all have high levels of economic development. As a result, they are most able to afford the resources that contribute to high academic performance, from good prenatal care to high-quality preschools to well-funded primary schools.

Within countries as well, the economic background of the family makes a great difference in children's academic performance. This is especially true in the United States, where schools are funded mostly on the basis of local property taxes rather than by the national government. As a result, the rich get richer, and the poor get poorer: schools in the poorest areas have the least amount of resources to provide for children coming from

Children in many Asian countries are required to wear school uniforms. How is the requirement of wearing school uniforms a custom complex?



Cultural Focus: School and Education in Middle Childhood Across Cultures

Attending primary school has become a near-universal experience of middle childhood. However, in some countries there are many children who attend for only a few years, because their labor is desperately needed by their families for economic survival.

All primary schools teach children reading, writing, and math, but there are many variations in how children are taught and in what is expected of them, as you will see in this video.

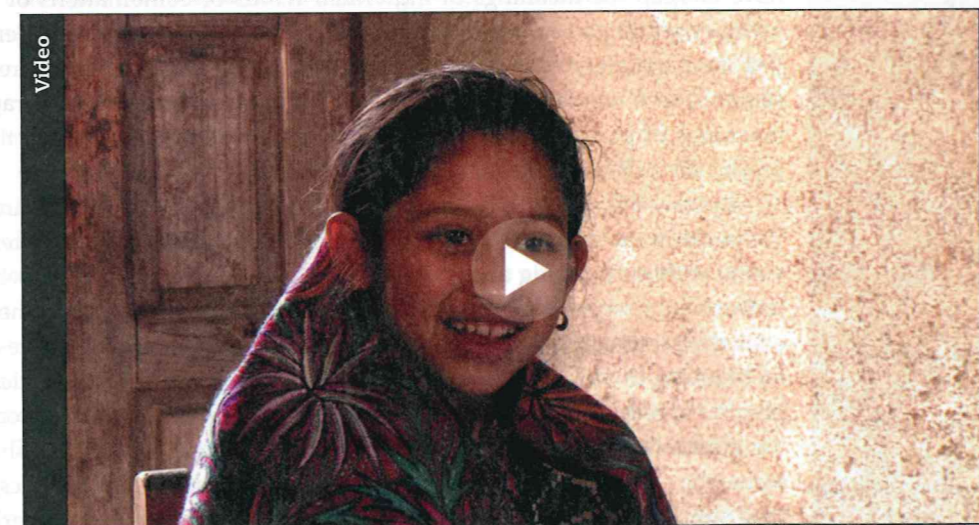
Until recently, boys were more likely than girls to attend primary school. School attendance requires school fees in many countries, and some poor families would use their extremely limited resources for the boys' education. Girls were often kept

home because it was believed that boys' education would be of greater benefit to the family. However, in recent years this gender difference has disappeared, and boys and girls are now equally likely to obtain primary education (UNICEF, 2014). In this video, a Mexican girl observes that in her village, girls are more likely than boys to attend schools, because boys are more often required to work to help the family.

Review Question:

What common educational themes do you see among the individuals in this video?

Watch SCHOOL AND EDUCATION IN MIDDLE CHILDHOOD ACROSS CULTURES



poor families, whereas schools in the most affluent areas have the most resources, and the children attending those schools, who are mainly from affluent families, reap the benefits. Not surprisingly, given this system, children from low-income families generally score worse than children from high-income families on tests of academic achievement (NCES, 2013). Similarly, the wealthiest American states have the highest school achievement test scores, and the poorest states have the lowest scores.

Learning the Cognitive Skills of School: Reading and Mathematics

LO 7.11 Describe how reading and math skills develop from early childhood to middle childhood and the variations in approaches to teaching these skills.

In most cultures, middle childhood is when children first learn how to read and how to do math. However, there are variations in the timing and methods of teaching these skills, both within and between cultures.

APPROACHES TO READING Children learn language with remarkable proficiency without being explicitly taught or instructed, just from being around others who use the language and interacting with them. However, when they reach middle childhood, children must learn a whole new way of processing language, via reading, and for most children learning to read takes direct instruction. Learning to read is a relatively new development in human history. Until about 200 years ago, most people were illiterate all their lives. For example, in the United States in 1800, only about half of army recruits were even able to sign their own names on the enlistment documents (Rogoff et al., 2005). Because most human economic activity involved simple agriculture or hunting or fishing, learning to read was unnecessary for most people. They could learn what they needed to know from observing others and working alongside them, through guided participation. Today, of course, in a globalized, information-based economy, learning to read is an essential skill for most economic activity, across cultures. Consequently, children almost everywhere learn to read, usually beginning around age 6 or 7, when they enter school.

Think for a moment about the cognitive skills reading requires, so that you can appreciate how complex and challenging it is. In order to read, you have to recognize that letters are symbols of sounds, and then match a speech sound to each letter or letter combination. You have to know the meanings of whole words—one or two at first, then dozens, then hundreds, and eventually many thousands. As you read a sentence, you have to keep the meanings of individual words or combinations of words in working memory while you continue to read the rest of the sentence. At the end of the sentence, you must put all the word and phrase meanings together into a coherent meaning for the sentence as a whole. Then you have to combine sentences into paragraphs and derive meanings of paragraphs from the relations between the sentences; then combine paragraphs for still larger meanings; and so on.

By now this process no doubt comes naturally to you, after so many years of reading. We perform the complex cognitive tasks of reading automatically after reading for some years, without thinking about the components that go into it. But what is the best way to teach children who are first learning to read? Two major approaches have emerged in educational research over the years. The **phonics approach** advocates teaching children by breaking down words into their component sounds, called phonics, then putting the phonics together into words (Gray et al., 2007). Reading in this approach involves learning gradually more complex units: phonics, then single words, then short sentences, then somewhat longer sentences, and so on. After mastering their phonics and being able to read simple words and sentences, children begin to read longer materials such as poems and stories.

phonics approach

method of teaching reading that advocates breaking down words into their component sounds, called phonics, then putting the phonics together into words

The other major approach to teaching reading is the **whole-language approach** (Donat, 2006). In this view, the emphasis should be on the meaning of written language in whole passages, rather than breaking down each word into its smallest components. This approach advocates teaching children to read using complete written material, such as poems, stories, and lists of related items. Children are encouraged to guess at the meaning of words they do not know, based on the context of the word within the written material. In this view, if the material is coherent and interesting, children will be motivated to learn and remember the meanings of words they do not know.

Which approach works best? Each side has advocates, but evidence is substantial that the phonics approach is more effective at teaching children who are first learning to read (Beck & Beck, 2012). Children who have fallen behind in their reading progress using other methods improve substantially when taught with the phonics approach (Shawitz et al., 2004; Xue & Meisels, 2004). However, once children have begun to read they can also benefit from supplementing phonics instruction with the whole-language approach, with its emphasis on the larger meanings of written language and on using material from school subjects such as history and science to teach reading as well (Pressley et al., 2002; Silva & Martins, 2003).

Although learning to read is cognitively challenging, most children become able readers by Grade 3 (Popp, 2005). However, some children find learning to read unusually difficult. One condition that interferes with learning to read is **dyslexia**, which includes difficulty sounding out letters, difficulty learning to spell words, and a tendency to misperceive the order of letters in words (Snowling, 2004; Spafford & Grosser, 2005). Dyslexia is one of the most common types of **learning disabilities**, which are cognitive disorders that impede the development of learning a specific skill such as reading or math. As with other learning disabilities, children with dyslexia are not necessarily any less intelligent than other children; their cognitive problem is specific to the skill of reading. The causes of dyslexia are not known, but boys are about 3 times as likely as girls to have the disability, suggesting a genetic link to the Y chromosome (Hensler et al., 2010; Vidyasagar, 2004).

LEARNING MATH SKILLS There has been far more research on the development of reading than on the development of math skills (Berch & Mazzocco, 2007). Nevertheless, some interesting aspects of math development have been discovered. One is that even some nonhuman animals have a primitive awareness of **numeracy**, which means understanding the meaning of numbers, just as **literacy** means understanding the meaning of written words (Posner & Rothbart, 2007). Rats can be taught to discriminate between a two-tone and an eight-tone sequence, even when the sequences are matched in total duration. Monkeys can learn that the numbers 0 through 9 represent different quantities of rewards. In human infants the beginning of numeracy appears surprisingly early. When they are just 6 weeks old, if they are shown a toy behind a screen and see a second toy added, when the screen is then lowered they look longer and appear more surprised if one or three toys are revealed rather than the two toys they expected.

From toddlerhood through middle childhood, the development of math skills follows a path parallel to the development of language and readings skills (Doherty & Landells, 2006). Children begin to count around age 2, the same age at which their language development accelerates dramatically. They begin to be able to do simple addition and subtraction around age 5, about the same age they often learn to read their first words. In the course of middle childhood, as they become more adept readers, they typically advance in their math skills, moving from addition and subtraction to multiplication and division, and increasing their speed of processing in response to math problems (Posner & Rothbart, 2007). Children who have problems learning to read frequently have problems mastering early math skills as well.

Cultures vary in their timing and approach to teaching math skills to children, with consequences for the pace of children's learning. One study compared 5-year-old children

whole-language approach

method of teaching reading in which the emphasis is on the meaning of written language in whole passages, rather than breaking down words into their smallest components

dyslexia

learning disability that includes difficulty sounding out letters, difficulty learning to spell words, and a tendency to misperceive the order of letters in words

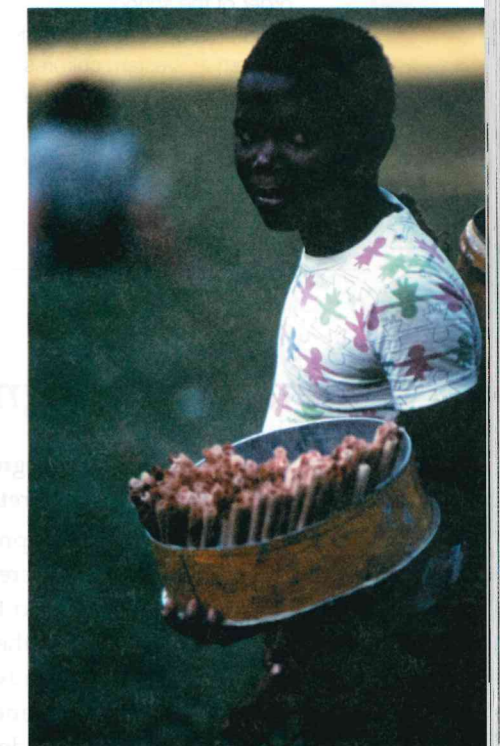
learning disability

cognitive disorder that impedes the development of learning a specific skill such as reading or math

numeracy

understanding of the meaning of numbers

Street children may learn math from the transactions involving the objects they sell. Here, a boy sells candy in a park in Rio de Janeiro, Brazil.



in China, Finland, and England (Aunio et al., 2008). The children in China scored highest, with children in Finland second, and the English children third. The authors related these variations to cultural differences in how math is taught and promoted. Children in China learn math beginning in preschool, and there is a strong cultural emphasis on math as an important basis of future learning and success. In contrast, English preschools usually make little attempt to teach children math skills, in the belief that they are not ready to learn math until they enter formal schooling.

Most children learn math skills within school, but sometimes math skills can be learned effectively in a practical setting. In a study of Brazilian street children, Geoffrey Saxe (2002) found that in selling candy they worked out complex calculations of prices and profits. Some had attended school and some had not, and the ones who had been to school were more advanced in some math skills but not in the skills necessary for them to succeed in their candy selling on the street.

Practice Quiz

ANSWERS AVAILABLE IN ANSWER KEY.

- Which statement best describes the history of education in the United States?
 - During the late 19th century, children went to school mostly during the spring and summer because it was too expensive to heat the schoolhouse in other times of the year.
 - Enrollment in school decreased throughout much of the 19th century.
 - In the late 19th century, classrooms were segregated by gender and age.
 - Prior to 1800, about half of children did not attend school.
- Which of the following is one of several features of Asian schools that reflect collectivistic cultural beliefs?
 - Children are required to help maintain the cleanliness and order of the school.
 - Children are required to go to school fewer days than children in Western cultures.
 - Rather than wearing a school uniform, parents decide how their children will dress.
 - Children often work alone so they can master difficult skills as quickly as possible.
- Zarena would have both the **shortest** school day and school year if she lived in _____.
 - South Korea
 - China
 - Japan
 - The United States
- Research on reading and math skills has shown that _____.
 - children who have trouble learning to read often have trouble mastering early math skills as well
 - in the last two decades, girls are more likely to be diagnosed with dyslexia than are boys
 - only humans have any awareness of numeracy
 - all approaches to reading are equally effective when children are first learning to read
- When first learning to read, Kara was taught using the phonics approach and Yolanda was taught with the whole-language approach. Which of the following outcomes is most likely based on existing research?
 - Kara will learn to read faster than Yolanda.
 - Yolanda will learn to read faster than Kara.
 - Both of them will learn to read equally well.
 - Kara is more at risk of developing dyslexia because of the confusion between the sound and appearance of letters linked to the phonics approach.

Summary: Cognitive Development

LO 7.5 Explain the major cognitive advances that occur during Piaget's concrete operations stage.

According to Piaget, children progress from the preoperational stage to the stage of concrete operations during middle childhood, as they learn to think more systematically and scientifically about how the world works and avoid cognitive errors. Cognitive advances during this stage include the ability to understand conservation, improved classification skills, and the understanding of seriation.

LO 7.6 Describe how attention and memory change from early childhood to middle childhood, and identify the characteristics of children who have ADHD.

In middle childhood, children become more capable of focusing their attention on relevant information and disregarding what is irrelevant. Children with especially notable difficulties in maintaining attention may be diagnosed with attention-deficit/hyperactivity disorder (ADHD),

which includes problems of inattention, hyperactivity, and impulsiveness. Middle childhood is the period when children first learn to use memory strategies such as rehearsal, organization, and elaboration.

LO 7.7 Describe the main features and critiques of intelligence tests, and compare and contrast Gardner's and Sternberg's approaches to conceptualizing intelligence.

Intelligence testing first becomes a reliable predictor of later development in middle childhood. Critics have complained, however, that IQ tests assess only a narrow range of abilities, and miss some of the most important aspects of intelligence, such as creativity. Average IQ scores have risen substantially over the 20th century. In recent decades, alternative theories of intelligence have sought to present a conception of intelligence that is much broader than the traditional one. These include Howard Gardner's theory of multiple intelligences and Robert Sternberg's triarchic theory of intelligence. In Gardner's theory there are eight types of intelligence, whereas Sternberg proposes three, but neither theorist has been able to develop an effective way of assessing the intelligences they proposed.

LO 7.8 Identify the advances in vocabulary, grammar, and pragmatics during middle childhood.

Language development continues apace with massive additions to children's vocabularies once they learn to read. There is a fourfold increase in children's vocabularies between the ages of 6 and 10 or 11, and the grammar of children's language use becomes more complex. Their understanding of pragmatics also grows substantially during middle childhood, which can be seen vividly in children's use and appreciation of humor.

LO 7.9 Explain the consequences for cognitive development of growing up bilingual.

Becoming bilingual is beneficial, most notably in the development of metalinguistic knowledge. The difficulty of learning a second language increases with age.

LO 7.10 Summarize the variations worldwide in school enrollment, socialization practices, and academic achievement during middle childhood.

Attending school is a relatively recent historical development in children's lives, and even today 18% of children in developing countries do not attend primary school. School has important influences on children's social development because it separates children from the world of adults and places them among same-age peers. It also makes them less of an economic asset to their parents. Schools vary widely around the world depending on cultural beliefs about how children should learn, but it is economic development, not school philosophy, that mainly determines children's performance on international tests of academic performance.

LO 7.11 Describe how reading and math skills develop from early childhood to middle childhood and the variations in approaches to teaching these skills.

In middle childhood, children must learn a new way of processing language, via reading, and for most children learning to read takes direct instruction. Phonics appears to be the most effective approach to teaching children to read. Most children learn math skills within school, but sometimes math skills can be learned effectively in a practical setting.

Section 3 Emotional and Social Development

Learning Objectives

- 7.12** Describe the main features of emotional self-regulation and understanding in middle childhood and how other life stages compare.
- 7.13** Explain how different ways of thinking about the self are rooted in cultural beliefs, and summarize how self-concept and self-esteem change in middle childhood.
- 7.14** Describe how beliefs and behavior regarding gender change in middle childhood, including cultural variations.
- 7.15** Explain the distinctive features of family relations in middle childhood, and describe the consequences of parental divorce and remarriage.
- 7.16** Explain the main basis of friendships in middle childhood, and describe the four categories of peer social status and the dynamics between bullies and victims.
- 7.17** Describe the kinds of work children do in middle childhood, and explain why work patterns differ between developed and developing countries.
- 7.18** Summarize the rates of daily TV-watching among children worldwide, and describe the positive and negative effects of television, especially the hazards related to TV violence.

EMOTIONAL AND SOCIAL DEVELOPMENT: Emotional and Self-Development

Children advance in their emotional self-regulation in middle childhood and experience relatively few emotional extremes. They grow in their self-understanding, and their self-esteem is generally high, although it depends on cultural context. They grow in their understanding of gender roles, too, but in some respects they become more rigid about those roles.

Smooth Sailing: Advances in Emotional Self-Regulation

LO 7.12 Describe the main features of emotional self-regulation and understanding in middle childhood and how other life stages compare.

Middle childhood is in some ways a golden age emotionally, a time of high well-being and relatively low volatility. In infancy, toddlerhood, and even early childhood, there are many emotional highs, but plenty of emotional lows, too. Outbursts of crying and

anger are fairly frequent in the early years of life, but by middle childhood the frequency of such negative emotions has declined substantially (Shipman et al., 2003). Negative emotions will rise again in adolescence, as we will see in Chapter 8, but during middle childhood most days are free of any negative emotional extremes.

One valuable source of information about emotions in middle childhood is research using the **Experience Sampling Method (ESM)** pioneered by Reed Larson and his colleagues (Larson & Richards, 1994; Larson et al., 2002; Richards et al., 2002). The ESM involves having people wear wristwatch beepers that randomly beep during the day so that people can record their thoughts, feelings, and behavior. Each time they are “beeped,” participants rate the degree to which they currently feel happy to unhappy, cheerful to irritable, and friendly to angry, as well as how hurried, tired, and competitive they are feeling. The focus of Larson’s research has been on adolescence, so we’ll discuss the ESM method in more detail in Chapter 8, but some of his research has included middle childhood in order to chart the emotional changes that take place from middle childhood to adolescence.

The overall conclusion of ESM research with regard to middle childhood is that it is time of remarkable contentment and emotional stability (Larson & Richards, 1994). When beeped, children in middle childhood report being “very happy” 28% of the time, a far higher percentage than for adolescents or adults. Children at this age mostly have “quite enjoyable lives” in which they “bask in a kind of naïve happiness” (Larson & Richards, 1994, p. 85). Sure, they are sad or angry occasionally, but it is almost always due to something concrete and immediate such as getting scolded by a parent or losing a game, “events that pass quickly and are forgotten” (p. 85).

Emotional self-regulation improves from early childhood to middle childhood in part because the environment requires it (Geldhof et al., 2010). Middle childhood is often a time of moving into new contexts: primary school, civic organizations (such as the Boy Scouts and Girl Scouts), sports teams, and music groups. All of these contexts make demands for emotional self-regulation. Children are required to do what they are told (whether they feel like it or not), to wait their turn, and to cooperate with others. Expressions of emotional extremes are disruptive to the functioning of the group and are discouraged. Most children are capable of meeting these demands by middle childhood.

Emotional understanding also advances from early to middle childhood. Children become better able to understand both their own and others’ emotions. They become aware that they can experience two contradictory emotions at once, an emotional state known as **ambivalence**; for example being both happy (because my team won the game) and sad (because my best friend was on the losing team) (Pons et al., 2003). They also learn how to conceal their emotions intentionally (Saarni, 1999). This allows them to show a socially acceptable emotion such as gratitude when, for example, they open a birthday present they didn’t really want. In Asian cultures, children in middle childhood learn the concept of “face,” which means showing to others the appropriate and expected emotion regardless of how you actually feel (Han, 2011).

In the same way that children become able to suppress or conceal their own true emotions, they come to understand that other people may display emotional expressions that do not indicate what they actually feel (Saarni, 1999). Children’s understanding of others’ emotions is also reflected in increased capacity for empathy (Goldstein & Winner, 2012; Hoffman, 2000). By middle childhood, children become better cognitively at perspective-taking, and the ability to understand how others view events fosters the ability to understand how they feel, too.



Middle childhood is an exceptionally happy time of life.

Experience Sampling Method (ESM)

research method that involves having people wear beepers, usually for a period of 1 week; when they are beeped at random times during the day, they record a variety of characteristics of their experience at that moment

ambivalence

emotional state of experiencing two contradictory emotions at once

Self-Understanding

LO 7.13 Explain how different ways of thinking about the self are rooted in cultural beliefs, and summarize how self-concept and self-esteem change in middle childhood.

self-concept

person's perception and evaluation of him- or herself

social comparison

how persons view themselves in relation to others with regard to status, abilities, or achievements

In middle childhood, children become more accurate in comparing themselves to others.

Sociologist George Herbert Mead (1934) made a distinction between what he called the *I-self* (how we believe others view us) and the *me-self* (how we view ourselves). Both the *I-self* and the *me-self* change in important ways in middle childhood. We discuss the *me-self* first, then the *I-self*, and then we look at the cultural basis of conceptions of the self.

SELF-CONCEPT Our **self-concept**, that is, how we view and evaluate ourselves, changes during middle childhood from the external to the internal and from the physical to the psychological (Lerner et al., 2005; Marsh & Ayotte, 2003; Rosenberg, 1979). Up until the age of 7 or 8, most children describe themselves mainly in terms of external, concrete, physical characteristics. ("My name is Mona. I'm 7 years old. I have brown eyes and short black hair. I have two little brothers.") They may mention specific possessions ("I have a red bicycle.") and activities they enjoy ("I like to dance." "I like to play sports.")

In the course of middle childhood, they add more internal, psychological, personality-related traits to their self-descriptions ("I'm shy." "I'm friendly." "I try to be helpful."). They may also mention characteristics that are *not me* ("I don't like art." "I'm not very good at math."). Toward the end of middle childhood their descriptions become more complex, as they recognize that they may be different on different occasions (Harter, 2003) ("Mostly I'm easy to get along with, but sometimes I lose my temper.")

Another important change in self-concept in middle childhood is that children engage in more accurate **social comparison**, in which they compare themselves to others (Guest, 2007). A 6-year-old might describe himself by saying, "I'm really good at math," whereas a 9-year-old might say "I'm better than most kids at math, although there are a couple of kids in my class who are a little better." These social comparisons reflect advances in the cognitive ability of seriation, discussed earlier in the chapter. In the same way that children learn how to arrange sticks accurately from shortest to tallest in middle childhood, they also learn to rank themselves more accurately in abilities relative to other children. The age grading of schools promotes social comparisons, as it places children in a setting where they spend most of a typical day around other children their age. Teachers compare them to one another by giving them grades, and they notice who is relatively good and relatively not so good at reading, math, and so on.

Self-concept can be influenced not only by age but by social context. In a multicultural society like the United States, the views of the majority culture can influence how children in minority cultures think about themselves. One classic study in the 1940s found that when African American and White children in middle childhood were given a choice of two dolls to play with, one White and one Black, even most of the Black children chose

the White doll (Clark & Clark, 1947). Furthermore, children of both groups tended to choose the White doll as the "good" doll and the Black doll as the "bad" doll. Even recent studies continue to show that children often view dark skin as "bad" and white skin as "good" (Byrd, 2012).

SELF-ESTEEM **Self-esteem** is a person's overall sense of worth and well-being. A great deal has been written and discussed about self-esteem in American society in the past 50 years. Even among Western countries, Americans value high self-esteem to a greater extent than people in other countries, and the gap between Americans and non-Western countries in this respect is especially great. For example, in traditional Japanese culture, self-criticism is a virtue and high self-esteem is a character problem (Heine et al., 1999). The belief in the value of high self-esteem is part of American individualism (Bellah et al., 1985; Rychlak, 2003).

Self-esteem declines slightly in the transition from early childhood to middle childhood, as children enter a school environment in which social comparisons are a daily experience (Lerner et al., 2005; Wigfield et al., 1997). The decline is mild, and simply reflects children's more realistic appraisal of their abilities as they compare themselves to others and are rated by teachers. For the rest of middle childhood, overall self-esteem is high for most children, reflecting the generally positive emotional states mentioned earlier. In Western countries, having low self-esteem in middle childhood is related to anxiety, depression, and antisocial behavior (Robins et al., 2001).

An important change in self-esteem in middle childhood is that it becomes more differentiated. In addition to overall self-esteem, children have self-concepts for several specific areas, including academic competence, social competence, athletic competence, and physical appearance (Harter, 2012; Marsh & Ayotte, 2003). Within each of these areas, self-concept is differentiated into sub-areas. For example, children may see themselves as good at baseball but not basketball, while also having an overall high or low evaluation of their athletic competence.

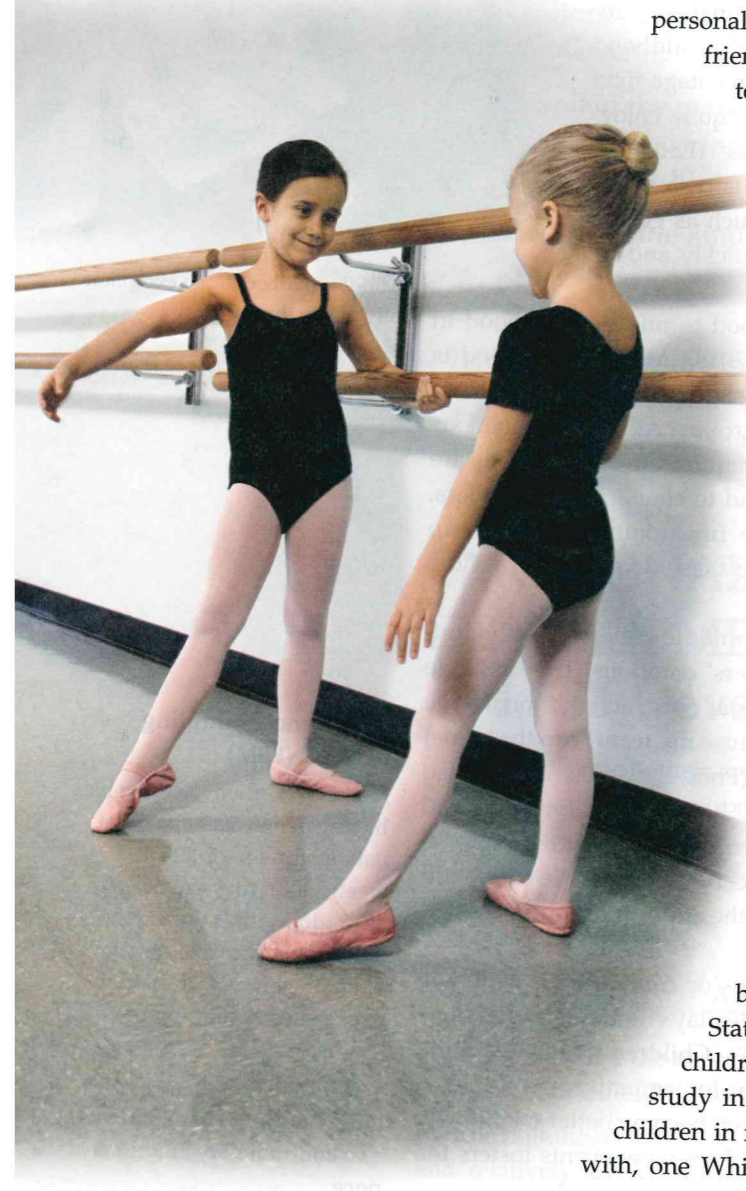
Children combine their different areas of self-concept into an overall level of self-esteem. For most children and adolescents, physical appearance is the strongest contributor to overall self-esteem (Harter, 2012; Klomsten et al., 2004). However, in other areas, children's self-concept contributes to overall self-esteem only if they value doing well in that area. For example, a child may be no good at sports but not care about sports, in which case low athletic self-concept would have no effect on overall self-esteem.

CULTURE AND THE SELF The conception of the self that children have by middle childhood varies substantially among cultures. In discussing cultural differences in conceptions of the self scholars typically distinguish between the *independent self* promoted by individualistic cultures and the *interdependent self* promoted by collectivistic cultures (Cross & Gore, 2003; Markus & Kitayama, 1991; Shweder et al., 2006). Cultures that promote an independent, individualistic self also promote and encourage reflection about the self. In such cultures it is seen as a good thing to think about yourself, to consider who you are as an independent person, and to think highly of yourself (within certain limits, of course—no culture values selfishness or egocentrism). Americans are especially known for their individualism and their focus on self-oriented issues. It was an American who first invented the term *self-esteem* (William James, in the late 19th century), and the United States continues to be known to the rest of the world as a place where the independent self is valued and promoted (Green et al., 2005; Triandis, 1995).

However, not all cultures look at the self in this way or value the self to the same extent. In collectivistic cultures, an interdependent conception of the self prevails

self-esteem

person's overall sense of worth and well-being



(Markus & Kitayama 2010). In these cultures, the interests of the group—the family, the kinship group, the ethnic group, the nation, the religious institution—are supposed to come first, before the needs of the individual. This means that it is not necessarily a good thing, in these cultures, to think highly of yourself. People who think highly of themselves, who possess a high level of self-esteem, threaten the harmony of the group because they may be inclined to pursue their personal interests regardless of the interests of the groups to which they belong.

Cultural variations in views of the self influence approaches to parenting. Parents in most places and times have been more worried that their children would become too selfish than that they would have low self-esteem. As a result, parents have discouraged self-inflation as part of family socialization (Harkness et al., 2015; LeVine et al., 2008). However, this kind of parenting works differently if it is part of a cultural norm rather than an exception within a culture. For example, children from Asian cultures are discouraged from valuing the self highly, yet they generally have high levels of academic performance and low levels of psychological problems (Markus & Kitayama, 2010). In contrast, children within the American majority culture who are exposed to parenting that is critical and negative show negative effects such as depression and poor academic performance (Bender et al., 2007; DeHart et al., 2006). It may be that children in Asian cultures learn to expect criticism if they show signs of high self-esteem, and they see this as normal in comparison to other children, whereas American children learn to expect frequent praise, and hence they suffer more if their parents are more critical than the parents of their peers (Rudy & Grusec, 2006).

It should be added that most cultures are not purely either independent or interdependent in their conceptions of the self, but have elements of each (Killen & Wainryb, 2000). Also, with globalization, many cultures that have a tradition of interdependence are changing toward a more independent view of the self (Arnett, 2002, 2011).

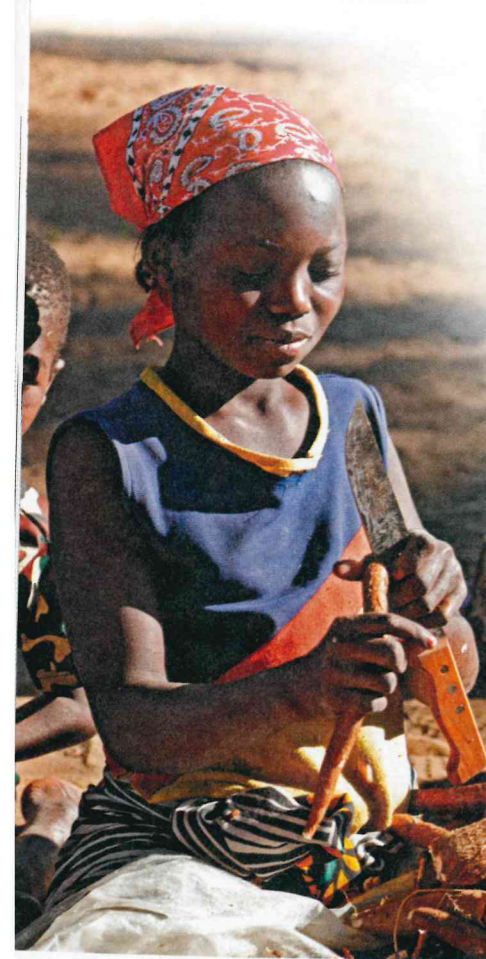
Gender Development

LO 7.14 Describe how beliefs and behavior regarding gender change in middle childhood, including cultural variations.

As described in Chapter 6, cultural beliefs about gender become well established by the end of early childhood. Gender roles become even more sharply divided during middle childhood. In traditional cultures, the daily activities of men and women are very different, and the activities of boys and girls become more differentiated in middle childhood as they begin to take part in their parents' work. In the human past, men have been responsible for hunting, fishing, caring for domestic animals, and fighting off animal and human attackers (Gilmore, 1990). Women have been responsible for caring for young children, tending the crops, food preparation, and running the household (Shlegel & Barry, 1991). This pattern still prevails in many developing countries (Gaskins, 2015). During middle childhood, boys increasingly learn to do what men do and girls increasingly learn to do what women do.

Boys and girls not only learn gender-specific tasks in middle childhood, they are also socialized to develop personality characteristics that enhance performance on those tasks: independence and toughness, for boys, and nurturance and compliance for girls. In an early study of 110 traditional cultures, boys and girls were socialized to develop these gender-specific traits in virtually all cultures (Barry et al., 1957). More recent analyses of gender socialization in traditional cultures have found that these patterns persist (Banerjee, 2005; Kapadia & Gala, 2015; LeVine, 2008).

In developing countries, the kinds of work children and adults do is often divided strictly by gender. Here, a girl in Mozambique helps prepare cassava, a local food.



In modern developed countries, too, children's gender attitudes and behavior become more stereotyped in middle childhood. Children increasingly view personality traits as associated with one gender or the other rather than both. Traits such as "gentle" and "dependent" become increasingly viewed as feminine, and traits such as "ambitious" and "dominant" become increasingly viewed as masculine (Best, 2001; Heyman & Legare, 2004). Both boys and girls come to see occupations they associate with men (such as firefighter or astronomer) as having higher status than occupations they associate with women (such as nurse or librarian) (Liben et al., 2001; Weisgram et al., 2010). Furthermore, children increasingly perceive some school subjects as boys' areas (such as math and science) and others as girls' areas (such as reading and art) (Guay et al., 2010). Teachers may bring gender biases into the classroom, perhaps unknowingly, in ways that influence children's perceptions of what areas are gender-appropriate for them (Sadker & Sadker, 1994). Accordingly, boys come to feel more competent than girls at math and science and girls come to feel more competent than boys at verbal skills—even when they have equal abilities in these areas (Hong et al., 2003).

Socially, children become even more gender-segregated in their play groups in middle childhood than they were in early childhood. In traditional cultures, gender-segregated play is a consequence of the gender-specific work boys and girls are doing by middle childhood. In the 12-culture analysis by Whiting and Edwards (1988; see Chapter 6), same-gender play groups rose from a proportion of 30–40% at age 2–3 to over 90% by age 8–11. However, the same pattern is true in developed countries, where boys and girls are in the same schools engaged in the same daily activities (McHale et al., 2003). When boys' and girls' play groups do interact in middle childhood, it tends to be in a manner that is at once quasi-romantic and antagonistic, such as playing a game in which the girls chase the boys, or tossing mild insults at each other, like the one my daughter Paris came home chanting one day at age 7:

GIRLS go to COLlege to get more KNOWledge.
BOYS go to JUPiter to get more STUperid.

Thorne (1986) calls this kind of gender play "border work" and sees its function as clarifying gender boundaries during middle childhood. It can also be seen as the first tentative step toward the romantic relations that will develop in adolescence.

In terms of their gender self-perceptions, boys and girls head in different directions in middle childhood (Banerjee, 2005; Kapadia & Gala, 2015). Boys increasingly describe themselves in terms of "masculine" traits. They become more likely to avoid activities that might be considered feminine, because their peers become increasingly intolerant of anything that threatens to cross gender boundaries (Blakemore, 2003). In contrast, girls become more likely to attribute "masculine" characteristics such as "forceful" and "self-reliant" to themselves in the course of middle childhood. They do not become less likely to describe themselves as having "feminine" traits such as "warm" and "compassionate," but they add "masculine" traits to their self-perceptions. Similarly, they become more likely during middle childhood to consider future occupations usually associated with men, whereas boys become less likely to consider future occupations associated with women (Gaskins, 2015; Liben & Bigler, 2002).

Why are interactions between boys and girls often quasi-romantic and antagonistic in middle childhood?



Practice Quiz

ANSWERS AVAILABLE IN ANSWER KEY.

- During middle childhood _____.
 - children are less content than in adolescence mostly because they do not have the social skills required to manage peer conflict
 - it is harder for children to hide their emotions than in early childhood because they become so much more intense at this period of development
 - children are aware that they can experience two contradictory emotions at once
 - the ability to self-regulate decreases from early childhood, mostly because of the many different contexts they experience
- Dr. Marinello is using the Experience Sampling Method (ESM) method for her research. She is mostly likely measuring _____.
 - emotions
 - self-esteem
 - self-concept
 - meta-cognitive awareness
- Nine-year-old Xinyin is a boy from China, a collectivistic culture. He would be more likely than his counterpart in the United States to answer the fill-in-the-blank question, "I am _____" with the following.
 - one of the smartest kids in my class
 - a boy with brown hair
 - a son
 - good at soccer and tennis
- When compared to her 6-year-old sister, Isabelle, an 8th grader, is more likely to describe herself in terms of _____ characteristics.
 - physical
 - concrete
 - psychological
 - external
- During middle childhood _____.
 - both boys and girls come to see occupations they associate with men as having higher status than occupations they associate with women
 - gender segregation is unique to play groups in the United States
 - boys feel less competent than their female counterparts in math and science even when they have equal abilities in these areas based on their grades
 - play groups in traditional cultures become less gender-segregated than they were in early childhood

EMOTIONAL AND SOCIAL DEVELOPMENT: The Social and Cultural Contexts of Middle Childhood

There is both continuity and change in social contexts from early to middle childhood. Nearly all children remain within a family context, although the composition of the family may change in some cultures due to parents' divorce or remarriage. A new social context is added, as children in nearly all cultures begin formal schooling when they enter this life stage. For children in developing countries today, middle childhood may also mean entering a work setting such as a factory. In all countries, media have become an important socialization context, especially television.

Family Relations

LO 7.15 Explain the distinctive features of family relations in middle childhood, and describe the consequences of parental divorce and remarriage.

Middle childhood represents a key turning point in family relations. Up until that time, children in all cultures need, and receive, a great deal of care and supervision, from parents and older siblings and sometimes from extended family members. They lack sufficient emotional and behavioral self-regulation to be on their own for even a short period of time. However, in middle childhood they become much more capable of going about their daily activities without constant monitoring and control by others. From early childhood to middle childhood, parents and children move away from direct

parental control and toward **coregulation**, in which parents provide broad guidelines for behavior but children are capable of a substantial amount of independent, self-directed behavior (Calkins, 2012; Maccoby, 1984; McHale et al., 2003). Parents continue to provide assistance and instruction, and they continue to know where their children are and what they are doing nearly all the time, but there is less need for direct, moment-to-moment monitoring.

This pattern applies across cultures. In developed countries, studies have shown that children spend substantially less time with their parents in middle childhood than in early childhood (Parke, 2004). Children respond more to parents' rules and reasoning, due to advances in cognitive development and self-regulation, and parents in turn use more explanation and less physical punishment (Collins et al., 2002; Parke, 2004). Parents begin to give their children simple daily chores such as making their own beds in the morning and setting the table for dinner.

In traditional cultures, parents and children also move toward coregulation in middle childhood. Children have learned family rules and routines by middle childhood and will often carry out their family duties without having to be told or urged by their parents (Gaskins, 2015; Weisner, 1996). Also, children are allowed to play and explore further from home once they reach middle childhood (Whiting & Edwards, 1988). Boys are allowed more of this freedom than girls are, in part because girls are assigned more daily responsibilities in middle childhood. However, girls are also allowed more scope for independent activity in middle childhood. For example, in the Mexican village described by Beverly Chinas (1992), when they reach middle childhood girls have responsibility for going to the village market each day to sell the tortillas they and their mothers have made that morning. By middle childhood they are capable of going to the market without an adult to monitor them, and they are also capable of making the monetary calculations required in selling the tortillas and providing change.

Sibling relationships also change in middle childhood (Bryant, 2014). Children with an older sibling often benefit from the sibling's help with academic, peer, and parent issues (Brody, 2004). Both older and young siblings benefit from mutual companionship and assistance. However, the sibling rivalry and jealousy mentioned in Chapter 6 continues in middle childhood. In fact, sibling conflict peaks in middle childhood (Cole & Kerns, 2001). In one study that recorded episodes of conflict between siblings, the average frequency of conflict was once every 20 minutes they were together (Kramer et al., 1999). The most common source of conflict is personal possessions (McGuire et al., 2000). Sibling conflict is especially high when one sibling perceives the other as receiving more affection and material resources from the parents (Dunn, 2004). Other factors contributing to sibling conflict are family financial stress and parents' marital conflict (Jenkins et al., 2003).

DIVERSE FAMILY FORMS Children worldwide grow up in a wide variety of family environments. Some children have parents who are married while others are in single-parent, divorced, or stepfamilies; some children are raised by heterosexual parents while others are raised by gay or lesbian parents; and still others live with extended family members or in multigenerational families. Some are adopted or live with relatives other than their parents. In the United States, only 59% of children live with both biological parents through middle childhood (Childstats.gov, 2013). Of the rest, about 24% live with a single mom, 5% live with a biological parent and stepparent, and 12% live in other family forms, such as with a grandmother or with adoptive parents.

coregulation

relationship between parents and children in which parents provide broad guidelines for behavior but children are capable of a substantial amount of independent, self-directed behavior

Siblings often benefit from having each other as companions.



Practice Quiz

ANSWERS AVAILABLE IN ANSWER KEY.

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This pattern applies across cultures. In developed countries, studies have shown that children spend substantially less time with their parents in middle childhood than in early childhood (Parke, 2004). Children respond more to parents' rules and reasoning, due to advances in cognitive development and self-regulation, and parents in turn use more explanation and less physical punishment (Collins et al., 2002; Parke, 2004). Parents begin to give their children simple daily chores such as making their own beds in the morning and setting the table for dinner.

In traditional cultures, parents and children also move toward coregulation in middle childhood. Children have learned family rules and routines by middle childhood and will often carry out their family duties without having to be told or urged by their parents (Gaskins, 2015; Weisner, 1996). Also, children are allowed to play and explore further from home once they reach middle childhood (Whiting & Edwards, 1988). Boys are allowed more of this freedom than girls are, in part because girls are assigned more daily responsibilities in middle childhood. However, girls are also allowed more scope for independent activity in middle childhood. For example, in the Mexican village described by Beverly Chinas (1992), when they reach middle childhood girls have responsibility for going to the village market each day to sell the tortillas they and their mothers have made that morning. By middle childhood they are capable of going to the market without an adult to monitor them, and they are also capable of making the monetary calculations required in selling the tortillas and providing change.

Sibling relationships also change in middle childhood (Bryant, 2014). Children with an older sibling often benefit from the sibling's help with academic, peer, and parent issues (Brody, 2004). Both older and young siblings benefit from mutual companionship and assistance. However, the sibling rivalry and jealousy mentioned in Chapter 6 continues in middle childhood. In fact, sibling conflict peaks in middle childhood (Cole & Kerns, 2001). In one study that recorded episodes of conflict between siblings, the average frequency of conflict was once every 20 minutes they were together (Kramer et al., 1999). The most common source of conflict is personal possessions (McGuire et al., 2000). Sibling conflict is especially high when one sibling perceives the other as receiving more affection and material resources from the parents (Dunn, 2004). Other factors contributing to sibling conflict are family financial stress and parents' marital conflict (Jenkins et al., 2003).

DIVERSE FAMILY FORMS Children worldwide grow up in a wide variety of family environments. Some children have parents who are married while others are in single-parent, divorced, or stepfamilies; some children are raised by heterosexual parents while others are raised by gay or lesbian parents; and still others live with extended family members or in multigenerational families. Some are adopted or live with relatives other than their parents. In the United States, only 59% of children live with both biological parents through middle childhood (Childstats.gov, 2013). Of the rest, about 24% live with a single mom, 5% live with a biological parent and stepparent, and 12% live in other family forms, such as with a grandmother or with adoptive parents.

coregulation

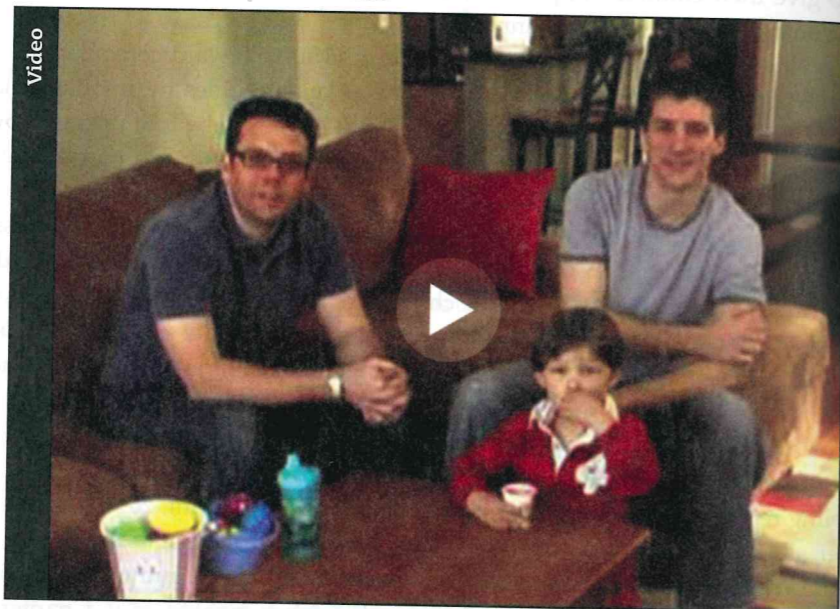
relationship between parents and children in which parents provide broad guidelines for behavior but children are capable of a substantial amount of independent, self-directed behavior

Siblings often benefit from having each other as companions.



Gay couples are now allowed to adopt children in some American states and some European countries, and lesbian couples often adopt children or become artificially inseminated. In the latest U.S. census, over 20% of gay couples and one third of lesbian couples were living with children, a dramatic increase over the past 20 years (U.S. Bureau of the Census, 2010). The video *A Family with Two Fathers* describes the adoption process for one such family. Studies of the children of gay and lesbian couples have found that they are highly similar to other children (Goldberg, 2010; Patterson, 2002). In adolescence nearly all are heterosexual, despite the homosexual model their parents provide (Hyde & DeLamater, 2005).

Watch A FAMILY WITH TWO FATHERS



Over the past 50 years, it has become increasingly common in some countries for children to be born to a single mother. The United States is one of the countries where the increase has been greatest. Single motherhood has increased among both Whites and African Americans, but is highest among African Americans; over 70% of African American children are born to a single mother (U.S. Bureau of the Census, 2010). Rates of single motherhood are also high in northern Europe (Ruggeri & Bird, 2014). However, it is more likely in northern Europe than in the United States for the father to be in the home as well, even though the mother and father may not be married. If we combine those children born to single mothers with those living with a single parent as a result of divorce, fewer than half of American children live with both biological parents throughout their entire childhood.

What are the consequences of growing up with in a single-parent household? Because there is only one parent to carry out household responsibilities such as cooking and cleaning, children in single-parent households often contribute a great deal to the functioning of the family, much like children in traditional cultures. However, the most important consequence of growing up in a single-parent family is that it greatly increases the likelihood of growing up in poverty, and growing up in poverty, in turn, has a range of negative effects on children (Harvey & Fine, 2004). Children in single-parent families generally are at higher risk for behavior problems and low school achievement when compared to their peers in two-parent families (Ricciuti, 2004).

Poverty is common in single-parent families.



Single-parent families are diverse, and many children who grow up in single-parent families function very well. When the mother makes enough money so the family is not in poverty, children in single-parent families function as well as children in two-parent families (Lipman et al., 2002). Single-father families are relatively rare, but children with a single father are no different than their peers in middle childhood in regard to social and academic functioning (Amato, 2000). It should also be noted that having a single parent does not always mean there is only one adult in the household. In many African American families the grandmother is highly involved and provides child care, household help, and financial support to the single mother (Crowther & Rodrigues, 2003). In about one fourth of families with an African American single mother, the grandmother also lives in the household (Kelch-Oliver, 2011).

CHILDREN'S RESPONSES TO DIVORCE Rates of divorce have risen dramatically over the past half century in the United States, Canada, and northern Europe. Currently, close to half of children in many of these countries experience their parents' divorce by the time they reach middle childhood. In contrast, divorce remains rare in southern Europe and in non-Western countries.

How do children respond to their parents' divorce? A wealth of American and European research has addressed this question, including several excellent longitudinal studies. Overall, children respond negatively in a variety of ways, especially boys and especially in the first 2 years following divorce (Amato & Anthony, 2014). Children display increases in both externalizing problems (such as unruly behavior and conflict with mothers, siblings, peers, and teachers) and internalizing problems (such as depressed mood, anxieties, phobias, and sleep disturbances) (Clarke-Stewart & Brentano, 2006). Their school performance also declines (Amato & Boyd, 2013). If the divorce takes place during early childhood, children often blame themselves, but by middle childhood most children are less egocentric and more capable of understanding that their parents may have reasons for divorcing that have nothing to do with them (Hetherington & Kelly, 2002). In the video *Pam: Divorced Mother of Nine-Year-Old*, a woman describes the impact that her divorce has had on her daughter.

Watch PAM: DIVORCED MOTHER OF NINE-YEAR-OLD



In one renowned longitudinal study of divorces that took place when the children were in middle childhood, the researchers classified 25% of the children in divorced families as having severe emotional or behavioral problems, compared to 10% of

children in two-parent nondivorced families (Hetherington & Kelly, 2002). The low point for most children came 1 year after divorce. After that point, most children gradually improved in functioning, and by 2 years post-divorce, girls were mostly back to normal. However, boys' problems were still evident even 5 years after divorce. Problems continue for some children into adolescence, and new consequences appear, as we shall see in Chapter 8.

Not all children react negatively to divorce. Even if 25% have severe problems, that leaves 75% who do not. What factors influence how a divorce will affect children? Increasingly researchers have focused on **family process**, that is, the quality of the relationships between family members before, during, and after the divorce. In all families, whether divorced or not, parental conflict is linked to children's emotional and behavioral problems (Kelly & Emery, 2003). When parents divorce with minimal conflict, or when parents are able to keep their conflicts private, children show far fewer problems (Amato & Anthony, 2014). If divorce results in a transition from a high-conflict household to a low-conflict household, children's functioning often improves rather than deteriorates (Davies et al., 2002).

Another aspect of family process is children's relationship to the mother after divorce. Mothers often struggle in numerous ways following divorce (Wallerstein & Johnson-Reitz, 2004). In addition to the emotional stress of the divorce and conflict with ex-husbands, they now have full responsibility for household tasks and child care. There is increased financial stress, with the father's income no longer coming directly into the household. Most countries have laws requiring fathers to contribute to the care of their children after leaving the household, but despite these laws mothers often receive less than full child support from their ex-husbands (Children's Defense Fund, 2005; Statistics Canada, 2010). Given this pile-up of stresses, it is not surprising that the mother's parenting often takes a turn for the worse in the aftermath of divorce, becoming less warm, less consistent, and more punitive (Hetherington & Kelly, 2002).

Relationships between boys and their mothers are especially likely to go downhill after divorce. Mothers and boys sometimes become sucked into a **coercive cycle** following divorce, in which boys' less compliant behavior evokes harsh responses from mothers, which in turn makes boys even more resistant to their mothers' control, evoking even harsher responses, and so on (Patterson, 2002). However, when the mother is able to maintain a healthy balance of warmth and control despite the stresses, her children's response to divorce is likely to be less severe (Leon, 2003).

Family processes involving fathers are also important in the aftermath of divorce. In about 90% of cases (across countries) mothers retain custody of the children, so the father leaves the household and the children no longer see him on a daily basis. They may stay with him every weekend or every other weekend, and perhaps see him one evening during the week, in addition to talking to him on the phone. Now fathers must get used to taking care of the children on their own, without mothers present, and children must get used to two households that may have different sets of rules. For most children, contact with the father diminishes over time, and only 35–40% of children in mother-custody families still have at least weekly contact with their fathers within a few years of the divorce (Kelly, 2003). When the father remarries, as most do, his contact with children from the first marriage declines steeply (Dunn, 2002). However, when fathers remain involved and loving, children have fewer post-divorce problems (Dunn et al., 2004; Finley & Schwartz, 2010).

In recent decades, **divorce mediation** has developed as a way of minimizing the damage to children that may take place due to heightened parental conflict during and after divorce (Emery et al., 2005; Sbarra & Emery, 2008). In divorce mediation, a professional

mediator meets with divorcing parents to help them negotiate an agreement that both will find acceptable. Research has shown that mediation can settle a large percentage of cases otherwise headed for court and lead to better functioning in children following divorce, and to improved relationships between divorced parents and their children, even 12 years after the settlement (Emery et al., 2005).

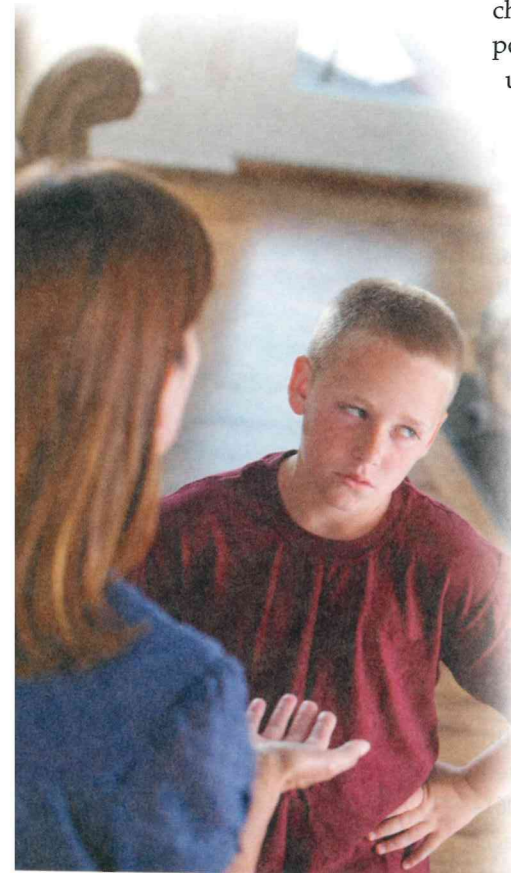
OUT OF THE FRYING PAN: CHILDREN'S RESPONSES TO REMARRIAGE Most adults who divorce remarry. Consequently, most children who experience their parents' divorce spend part of their childhood in a stepfamily. Because mothers retain custody of the children in about 90% of divorces, most stepfamilies involve the entrance of a stepfather into the family.

You might expect that the entrance of a stepfather would be a positive development in most cases, given the problems that face mother-headed families following divorce. Low income is a problem, and when the stepfather comes into the family this usually means a rise in overall family income. Mothers' stress over handling all the household and child care responsibilities is a problem, and after a stepfather enters the family he can share some of the load. Mothers' emotional well-being is a problem, and her well-being is typically enhanced by remarriage, at least initially (Visher et al., 2003). If mothers' lives improve in all these ways, their children's lives must improve, too, right?

Unfortunately, no. Frequently, children take a turn for the worse once a stepfather enters the family. Compared to children in nondivorced families, children in stepfamilies have lower academic achievement, lower self-esteem, and greater behavioral problems (Coleman et al., 2000; Nicholson et al., 2008). According to one estimate, about 20% of children in stepfamilies have serious problems in at least one aspect of functioning in middle childhood, compared to 10% of their peers in nondivorced families (Hetherington & Kelly, 2002). Girls respond more negatively than boys to remarriage, a reversal of their responses to divorce (Bray, 1999). If the stepfather also has children of his own that he brings into the household, making a *blended stepfamily*, the outcomes for children are even worse than in other stepfamilies (Becker et al., 2013).

There are a number of reasons for children's negative responses to remarriage. First, remarriage represents another disruption that requires adjustment, usually at a point when the family had begun to stabilize following the earlier disruption of divorce (Hetherington & Stanley-Hagan, 2002). Second, stepfathers may be perceived by children as coming in between them and their mothers, especially by girls, who may have become closer to their mothers following divorce (Bray, 1999). Third, and perhaps most importantly, children may resent and resist their stepfathers' attempts to exercise authority and discipline (Robertson, 2008). Stepfathers may be attempting to support the mother in parenting and to fulfill the family role of father, but children may refuse to regard him as a "real" father and may in fact regard him as taking their biological father's rightful place (Weaver & Coleman, 2010). When asked to draw their families, many children in stepfamilies literally leave their stepfathers out of the picture (Stafford, 2004).

However, it is important to add that here, as elsewhere, family process counts for as much as family structure. Many stepfathers and stepchildren form harmonious, close relationships (Becker et al., 2013; Coleman et al., 2000). The likelihood of this outcome is enhanced if the stepfather is warm and open to his stepchildren and does not immediately try to assert authority (Visher et al., 2003). Also, the younger the children are, the more open they tend to be to accepting the stepfather (Jeynes, 2007). The likelihood of conflict between stepfathers and stepchildren increases with the children's age, from early childhood to middle childhood and again from middle childhood to adolescence (Hetherington & Kelly, 2002).



Relationships between mothers and sons sometimes go downhill following divorce.

family process

quality of the relationships between family members

coercive cycle

pattern in relations between parents and children in which children's disobedient behavior evokes harsh responses from parents, which in turn makes children even more resistant to parental control, evoking even harsher responses

divorce mediation

arrangement in which a professional mediator meets with divorcing parents to help them negotiate an agreement that both will find acceptable

Friends and Peers

LO 7.16 Explain the main basis of friendships in middle childhood, and describe the four categories of peer social status and the dynamics between bullies and victims.

Friends rise in importance from early childhood to middle childhood, as greater freedom of movement allows children to visit and play with friends. Also, the entrance into formal schooling takes children away from the family social environment and places them in an environment where they spend a substantial amount of most days around many other children of similar age. Daily contact between children makes it possible for them to develop close friendships.

In this discussion of friends and peers we will first examine the characteristics of friendships in middle childhood, and then look at popularity and bullying in peer groups.

MAKING FRIENDS Why do children become friends with some peers but not others? An abundance of research over several decades has shown that the main basis of friendship is similarity, not just during middle childhood but at all ages (Rubin et al., 2008). People tend to prefer being around others who are like themselves, a principle called **selective association** (Popp et al., 2008). We have already seen how gender is an especially important basis of selective association in middle childhood. Boys tend to play with boys and girls with girls, more than at either younger or older ages. Other important criteria for selective association in middle childhood are sociability, aggression, and academic orientation (Hartup, 1996). Sociable kids are attracted to each other as friends, as are shy kids; aggressive kids tend to form friendships with each other, as do kids who refrain from aggression; kids who care a lot about school tend to become friends, and so do kids who dislike school.

In middle childhood, shared activities are still an important part of friendships, but now trust, too, becomes important. Children name fewer of their peers as friends, and friendships last longer, often several years (Rose & Asher, 1999). Your friends are kids who not only like to do things you like to do, but also whom you can rely on to be nice to you almost all the time, and whom you can trust with information you would not reveal to just anyone. In one study of children in Grades 3 to 6, the expectation that a friend would keep a secret increased from 25% to 72% across that age span among girls; among boys the increase came later and did not rise as high (Azmitia et al., 1998).

This finding reflects a more general gender difference found in many other studies, that girls prize trust in middle childhood friendships more than boys do, and that boys' friendships focus more on shared activities, although for both genders trust is more important in middle childhood than in early childhood (Rubin et al., 2008). As trust becomes more important to friendships in middle childhood, breaches of trust (such as breaking a promise or failing to provide help when needed) also become the main reason for ending friendships (Hartup & Abecassis, 2004).

PLAYING WITH FRIENDS Even though trust becomes a more important part of friendship in middle childhood, friends continue to enjoy playing together in shared activities. Recall from Chapter 6 that play in early childhood most often takes the form of simple social play or cooperative pretend play. These types of play continue in middle childhood. For example, children might play with dolls or action figures together, or they might pretend to be superheroes or animals.

selective association

in social relations, the principle that people tend to prefer being around others who are like themselves

Trust becomes more important to friendships in middle childhood.



What is new about play in middle childhood is that it becomes more complex and more rule-based. Children in early childhood may play with action figures, but in middle childhood there may be elaborate rules about the powers and limitations of the characters. For example, in the early 21st century, Japanese games involving Pokemon action figures became popular in middle childhood play worldwide, especially among boys (Ogletree et al., 2004; Simmons, 2014). These games involve characters with an elaborate range of powers and provide children with the enjoyment of competition and mastering complex information and rules. In early childhood the information about the characters would be too abundant and the rules too complex for children to follow, but by middle childhood this cognitive challenge is exciting and pleasurable.

In addition to games such as Pokemon, many of the games with rules that children play in middle childhood are more cognitively challenging than the games younger children play. Card games and board games become popular, and often these games require children to count, remember, and plan strategies. Middle childhood is also a time when many children develop an interest in hobbies such as collecting certain types of objects (e.g., coins, dolls) or constructing and building things (such as with LEGO toys, a Danish invention that is popular around the world in middle childhood). These hobbies also provide enjoyable cognitive challenges of organizing and planning (McHale et al., 2001). Recently, electronic games have become a highly popular type of game in middle childhood, and these games also present substantial cognitive challenges (Olson et al., 2008).

Although the complexity and cognitive challenges of play in middle childhood distinguish it from play in early childhood, children continue to enjoy simple games as well (Manning, 1998). According to cross-cultural studies, games such as tag and hide-and-seek are popular all over the world in middle childhood (Edwards, 2000). Children also play simple games that are drawn from their local environment, such as the herding games played by boys in Kenya in the course of caring for cattle.

Middle childhood games also reflect children's advances in gross motor development. As children develop greater physical agility and skill in middle childhood, their games with rules include various sports that require greater physical challenges than their early childhood games did. As noted earlier in the chapter, in many countries middle childhood is the time when children first join organized teams to play sports such as soccer, baseball, or basketball. Many children also play sports in games they organize themselves, often including discussions of the rules of the game (Davies, 2004).

POPULARITY AND UNPOPULARITY In addition to having friendships, children are also part of a larger social world of peers, especially once they enter primary school. Schools are usually **age graded**, which means that students at a given grade level tend to be the same age. When children are in a social environment with children of different ages, age is a key determinant of **social status**, in that older children tend to have more authority than younger children. However, when all children are about the same age, they find other ways of establishing who is high in social status and who is low. Based on children's ratings of who they like or dislike among their peers, researchers have described four categories of social status (Cillessen & Mayeux, 2004; Rubin et al., 2008):

- **Popular children** are the ones who are most often rated as "liked" and rarely rated as "disliked."
- **Rejected children** are most often disliked and rarely liked by other children. Usually, rejected children are disliked mainly for being overly aggressive, but in about 10–20% of cases rejected children are shy and withdrawn (Hymel et al., 2004; Sandstrom & Zakriski, 2004). Boys are more likely than girls to be rejected.
- **Neglected children** are rarely mentioned as either liked or disliked; other children have trouble remembering who they are. Girls are more likely than boys to be neglected.
- **Controversial children** are liked by some children but disliked by others. They may be aggressive at times but friendly at other times.

age graded

social organization based on grouping persons of similar ages

social status

within a group, the degree of power, authority, and influence that each person has in the view of the others

About two-thirds of children in American samples fall into one of these categories in middle childhood, according to most studies (Wentzel, 2003). The rest are rated in mixed ways by other children and are classified by researchers as “average.”

What characteristics determine a child’s social status? Abundant research indicates that the strongest influence on popularity is **social skills** such as being friendly, helpful, cooperative, and considerate (Caravita & Cillessen, 2012; Chan et al., 2000). Children with social skills are good at perspective-taking; consequently they are good at understanding and responding to other children’s needs and interests (Cassidy et al., 2003). Other important influences on popularity are intelligence, physical appearance, and (for boys) athletic ability (McHale et al., 2003). Despite the stereotype of the “nerd” or “geek” as a kid who is unpopular for being smart, in general, intelligence enhances popularity in middle childhood (in adolescence it becomes a bit more complicated, as we will see in Chapter 8). “Nerds” and “geeks” are unpopular because they lack social skills, not because of their intelligence.

Rejected children are usually more aggressive than other children, and their aggressiveness leads to conflicts (Coie, 2004). They tend to be impulsive and have difficulty controlling their emotional reactions, which disrupts group activities, to the annoyance of their peers. In addition to this lack of self-control, their lack of social skills and social understanding leads to conflict with others. According to Kenneth Dodge (2008), who has done decades of research on this topic, rejected children often fail in their **social information processing (SIP)**. That is, they tend to interpret their peers’ behavior as hostile even when it is not, and they tend to blame others when there is conflict.

For rejected children who are withdrawn rather than aggressive, the basis of their rejection is less clear. They may be shy and even fearful of other children, but these characteristics are also found often in neglected children. What distinguishes between rejected-withdrawn and neglected children? Rejected-withdrawn children are more likely to have internalizing problems such as low self-esteem and anxiety. In contrast, neglected children are usually quite well-adjusted (Wentzel, 2003). They may not engage in social interactions with peers as frequently as other children do, but they usually have social skills equal to average children, are not unhappy, and report having friends.

Controversial children often have good social skills, as popular children do, but they are also high in aggressiveness, like rejected children (DeRosier & Thomas, 2003). Their social skills make them popular with some children, and their aggressiveness makes them unpopular with others. They may be adept at forming alliances with some children and excluding others. Sometimes they defy adult authority in ways their peers admire but do not dare to emulate (Vaillancourt & Hymel, 2006).

Social status is related to other aspects of children’s development, in middle childhood and beyond, especially for rejected children. Because other children exclude them from their play and they have few or no friends, rejected children often feel lonely and they dislike going to school (Buhs & Ladd, 2001). Their aggressiveness and impulsiveness cause problems in their other social relationships, not just with peers, and they have higher rates of conflict with parents and teachers than other children do (Coie, 2004). According to longitudinal studies, being rejected in middle childhood is predictive of later conduct problems in adolescence and emerging adulthood (Caravita & Cillessen, 2012; Miller-Johnson et al., 2003). This does not necessarily mean that being rejected causes later problems; rather, it may indicate that the aggressiveness that inspires rejection from peers in middle childhood often continues at later ages and causes problems that take other forms. Nevertheless, being rejected by peers makes it more difficult for children to develop the social skills that would allow them to overcome a tendency toward aggressiveness.

Because rejected children are at risk for a downward spiral of problems in their social relationships, psychologists have developed interventions to try to ameliorate

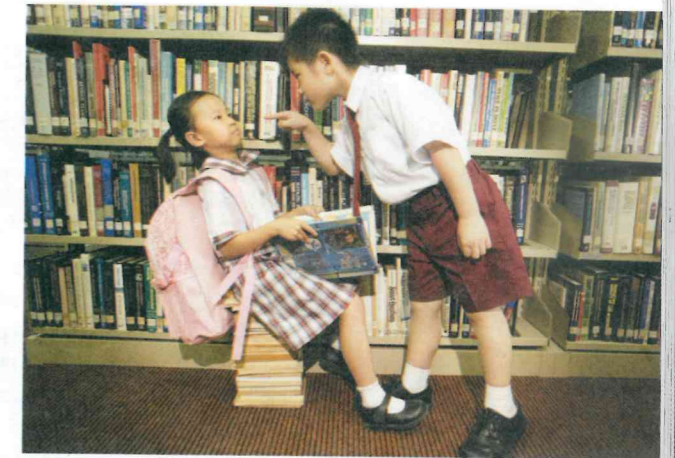
social skills

behaviors that include being friendly, helpful, cooperative, and considerate

social information processing (SIP)

in social encounters, evaluations of others’ intentions, motivations, and behavior

their low social status. Some of these interventions focus on social skills, training rejected children how to initiate friendly interactions with their peers (Asher & Rose, 1997). Other programs focus on social information processing, and seek to teach rejected children to avoid jumping to the conclusion that their peers’ intentions toward them are negative (Li et al., 2013). As part of the intervention, rejected children may be asked to role play hypothetical situations with peers, or watch a videotape of peer interactions with an instructor and talk about why the peers in the video acted as they did (Ladd et al., 2004). These programs have often shown success in the short term, improving rejected children’s social understanding and the quality of their peer interactions, but it is unknown whether the gains from the programs are deep enough to result in enduring improvements in rejected children’s peer relations.



The prevalence of bullying rises through middle childhood across countries.

CRITICAL THINKING QUESTION

Which of these categories of social status do you believe applied best to you in middle childhood: popular, rejected, neglected, controversial, or average? Do you believe your social status at that life stage has influenced your later development, or not?

BULLIES AND VICTIMS An extreme form of peer rejection in adolescence is **bullying**. Bullying is defined by researchers as having three components (Olweus, 2000; Wolak et al., 2007): *aggression* (physical or verbal); *repetition* (not just one incident but a pattern over time); and *power imbalance* (the bully has higher peer status than the victim). The prevalence of bullying rises through middle childhood and peaks in early adolescence, then declines substantially by late adolescence (Pepler et al., 2006). Bullying is an international phenomenon, observed in many countries in Europe (Dijkstra et al., 2008; Eslea et al., 2004; Gini et al., 2008), Asia (Ando et al., 2005; Hokoda et al., 2006; Kanetsuna et al., 2006), and North America (Espelage & Swearer, 2004; Pepler et al., 2008; Volk et al., 2006). Estimates vary depending on age and country, but overall about 20% of children are victims of bullies at some point during middle childhood. Boys are more often bullies as well as victims (Berger, 2007). Boys bully using both physical and verbal aggression, but girls can be bullies, too, most often using verbal methods (Pepler et al., 2004; Rigby, 2004).

There are two general types of bullies in middle childhood. Some are rejected children who are bully-victims, that is, they are bullied by children who are higher in status and they in turn look for lower-status victims to bully (Kochenderfer-Ladd, 2003). Bully-victims often come from families where the parents are harsh or even physically abusive (Schwartz et al., 2001). Other bullies are controversial children who may have high peer status for their physical appearance, athletic abilities, or social skills, but who are also resented and feared for their bullying behavior toward some children (Vaillancourt et al., 2003). Bullies of both types tend to have a problem controlling their aggressive behavior toward others, not just toward peers but in their other relationships, during middle childhood and beyond (Olweus, 2000). Bullies are also at higher risk than other children for depression (Fekkes et al., 2004; Ireland & Archer, 2004).

Victims of bullying are most often rejected-withdrawn children who are low in self-esteem and social skills (Champion et al., 2003). Because they have few friends, they often have no allies when bullies begin victimizing them (Goldbaum et al., 2003). They cry easily in response to bullying, which makes other children regard them as weak and vulnerable and deepens their rejection. Compared to other children, victims of bullying are more likely to be depressed and lonely (Baldry & Farrington, 2004; Rigby, 2004). Their low moods and loneliness may be partly a response to being bullied, but these are also characteristics that may make bullies regard them as easy targets.

bullying

pattern of maltreatment of peers, including aggression; repetition; and power imbalance

Cultural Focus: Friendships and Peer Relationships in Middle Childhood Across Cultures

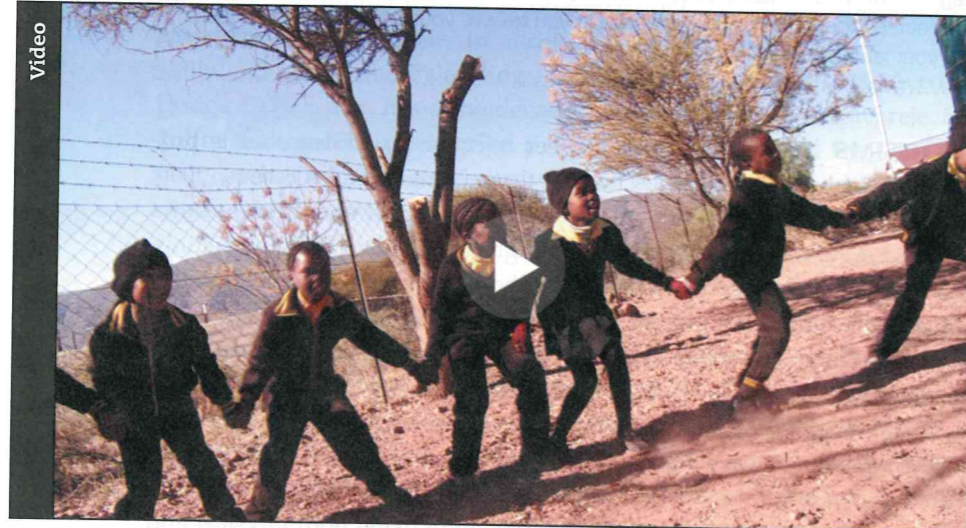
Although selective association is an important basis of friendship at all ages, over the course of childhood friendships change in other ways. An important change from early to middle childhood is in the relative balance of activities and trust (Rubin et al., 2008). Friendships in early childhood are based mainly on shared activities. Your friends are the kids who like to do the same things you like to do. Consequently, young children usually claim they have lots of friends, and their friends are more or less interchangeable. If you like to ride bikes, whoever is available to ride bikes

with you is your friend. When they describe their friends, young children talk mainly about their shared activities (Damon, 1983; Rubin et al., 2008). In this video, children in three cultures talk about their friendships.

Review Question:

Many of those interviewed discuss how friendships in middle childhood are often same gender. Why do you feel this self-segregation takes place?

Watch FRIENDSHIPS AND PEER RELATIONSHIPS IN MIDDLE CHILDHOOD ACROSS CULTURES



How do other children respond when they witness one of their peers being bullied? One study observed American children in Grades 1–6 on playgrounds and recorded bullying episodes (Hawkins et al., 2001). Other children intervened to help a victim about half the time, and when they did the bullies usually backed off. However, a study in Finland found that in 20–30% of bullying episodes, peers actually encouraged bullies and sometimes even joined in against the victim (Salmivalli & Voeten, 2004).

Work

LO 7.17 Describe the kinds of work children do in middle childhood, and explain why work patterns differ between developed and developing countries.

Increasingly in the course of middle childhood, my twins came up with ways to put themselves to work and earn money, especially my daughter Paris. For example, when she was 7 years old, she invented a drink she called “Raspberry Ramble,” made of apple juice, spiced tea, and crushed raspberries. She claimed we could sell large quantities of it and make a fortune. That same year, on a trip to Denmark, she collected dozens of rocks on the beach and announced she was opening a “rock museum” on her

bed that we could enjoy for a very reasonable price. Erik Erikson (1950), whose life span theory we have been discussing in each chapter (see Chapter 1), called middle childhood the stage of **industry versus inferiority**, when children become capable of doing useful work as well as their own self-directed projects, unless the adults around them are too critical of their efforts, leading them to develop a sense of inferiority instead. This part of Erikson’s theory has received little research. However, it is possible to see some verification of it in the way children across cultures are regarded as more capable than they were in early childhood and in the way they are often given important work responsibilities (Gaskins, 2015; Rogoff, 2003).

In developing countries, the work that children do in middle childhood is often not merely a form of play, as it was for my daughter, but a serious and sometimes perilous contribution to the family. In most developed countries, it is illegal to employ children in middle childhood (United Nations Development Programme [UNDP], 2010). However, in a large proportion of the world, middle childhood is the time when productive work begins. Children who do not attend school are usually working, often for their families on a farm or family business, but sometimes in industrial settings. With the globalization of the world economy, many large companies have moved much of their manufacturing to developing countries, where labor costs are cheaper. Cheapest of all is the labor of children. Before middle childhood, children are too immature and lacking in self-regulation to be useful in manufacturing. Their gross and fine motor skills are limited, their attention wanders too much, and they are too erratic in their behavior and their emotions. However, by age 6 or 7 children have the motor skills, the cognitive skills, and the emotional and behavioral self-regulation to be excellent workers at many jobs.

The International Labor Organization (ILO) has estimated that about 73 million children ages 5–11 are employed worldwide, which is about 9% of the total population of children in that age group, and 95% of working children are in developing countries (ILO, 2013). A substantial proportion of children work in Latin America, Asia, and the Middle East/North Africa, but the greatest number of child workers is found in sub-Saharan Africa. Agricultural work is the most common form of child employment, usually on commercial farms or plantations, often working alongside parents but for only one third to one half the pay (ILO, 2013). Children can quickly master the skills needed to plant, tend, and harvest agricultural products.

In addition, many children in these countries work in factories and shops where they perform labor such as weaving carpets, sewing clothes, gluing shoes, curing leather, and polishing gems. The working conditions are often miserable—crowded garment factories where the doors are locked and children (and adults) work 14-hour shifts, small poorly-lit huts where they sit at a loom weaving carpets for hours on end, glass factories where the temperatures are unbearably hot and children carry rods of molten glass from one station to another (ILO, 2004). Other children work in cities in a wide variety of jobs, including in domestic service, at grocery shops, in tea stalls, and delivering messages and packages.

If children’s work is so often difficult and dangerous, why do parents allow their children to work, and why do governments not outlaw child labor? For parents, the simple answer is that they need the money. As we have seen in Chapter 1, billions of people worldwide are very poor. Poor families in developing countries often depend on children’s contributions to the family income for basic necessities such as food and clothing. Children’s work may be difficult and dangerous, but so is the work of adults;



Children in developing countries often work long hours in poor conditions by middle childhood. Here, a young boy works in a factory in Bangladesh.

industry versus inferiority

Erikson’s middle childhood stage, in which the alternatives are to learn to work effectively with cultural materials or, if adults are too critical, develop a sense of being incapable of working effectively

often, parents and children work in the same factories. As for governments, nearly all countries do have laws prohibiting child labor, but some developing countries do not enforce them, because of bribes from the companies employing the children or because they do not wish to incur the wrath of parents who need their children's income (Chaudary & Sharma, 2007).

Although the exploitation of children's labor in developing countries is widespread and often harsh, signs of positive changes can be seen. According to the International Labor Organization, the number of child laborers ages 5–11 is rapidly declining (ILO, 2013). This decline has taken place because the issue of child and adolescent labor has received increased attention from the world media, governments, and international organizations such as the ILO and the United Nations Children's Fund (UNICEF). Furthermore, legislative action has been taken in many countries to raise the number of years children are legally required to attend school and to enforce the often-ignored laws against employing children younger than their mid-teens. Amid such signs of progress, it remains true that millions of children work in unhealthy conditions all around the world (ILO, 2013).

Media Use

LO 7.18 Summarize the rates of daily TV-watching among children worldwide, and describe the positive and negative effects of television, especially the hazards related to TV violence.

Media use is a part of daily life for most children even in early childhood, as we saw Chapter 6. Rates of media use remain about the same from early to middle childhood, except that time playing electronic games daily goes up, as shown in **Figure 7.9** (Rideout, 2013). Although many new media forms have appeared in the past decade, such as social media, television remains the most-used media form among children, at about an hour a day. By middle childhood about one fourth of children's media use involves **media multitasking**, the simultaneous use of more than one media form, such as playing an electronic game while watching TV (Warren, 2007).

As noted in Chapters 5 and 6, media forms and media content within each form are highly diverse, so it would be a mistake to characterize media use in childhood as solely

media multitasking

simultaneous use of more than one media form, such as playing an electronic game while watching TV

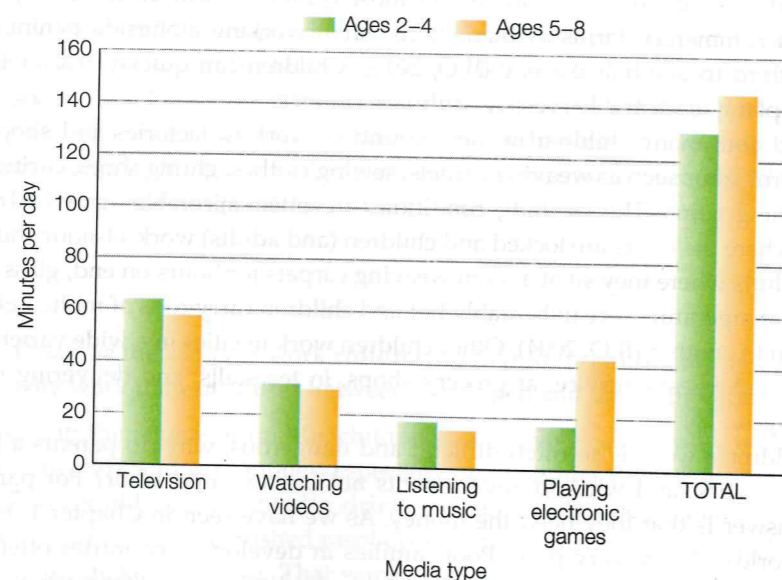


Figure 7.9 Media Use in Early and Middle Childhood

SOURCE: Based on Rideout (2013).

positive or negative. There is a big difference between watching *Clifford the Big Red Dog* on TV and watching a highly violent movie or TV show; children who play on prosocial websites like *Webkinz* or *Club Penguin* can be expected to respond differently than children who play violent electronic games like *Quake* or *Mortal Kombat*.

In general, media research on middle childhood has focused on the question of negative effects, as it has at other ages, but positive effects have also been noted. With regard to television, one analysis of 34 studies found that prosocial content in children's television shows had positive effects on four areas of children's functioning: altruism, positive social interactions, self-control, and combating negative stereotypes (Kotler, 2007). Furthermore, the positive effect of prosocial content was found to be equal to or greater than the negative effects of violent content. The Internet has been shown to be a valuable resource for children to learn about a wide range of topics, in school projects or just for enjoyment (Foehr, 2007; Van Evra, 2007). Much of children's media use is simply harmless fun, such as listening to music, playing nonviolent electronic games, and watching children's television shows.

The consequences of media use depend partly on whether children are light, moderate, or heavy media users (Van Evra, 2007). Light to moderate media use is generally harmless and can even be positive, especially if the media content is educational, prosocial, or at least nonviolent. In contrast, heavy media use is associated with a variety of problems in middle childhood, including obesity, anxiety, poor school performance, and social isolation. It is difficult to tell whether heavy media use is a cause or consequence of these problems; perhaps it is both.

Of all the problems associated with media use in middle childhood, aggression has been studied most extensively, specifically the effects of violent television on children's aggressiveness. As noted in Chapter 6, violence is common in the content of television shows. It is estimated that the average child in the United States witnesses 200,000 acts of violence on television by age 18, including 16,000 murders (Aikat, 2007). The violence is not just on adults' programs that children watch along with their parents. On the contrary, an analysis of programming for children ages 5–10 on eight TV networks found that the programs depicted an average of eight acts of violence per hour, *higher* than the rate on shows for adults (Fyfe, 2006).

With such high rates of violence in the television shows that children watch most, many parents and scholars have expressed concern about the possibility that television violence causes aggression in children. Although early childhood is considered to be the life stage of greatest vulnerability to the effects of media violence, some of the most important studies linking media violence to children's aggression have focused on middle childhood. The key studies have included field experiments, longitudinal studies, and natural experiments.

In field experiments, children's social behavior has been observed following exposure to violent television. For example, in one field experiment, there were two groups of boys at a summer camp (Bushman & Chandler, 2007). One group was shown violent films every evening for five nights; the other group watched nonviolent films during this period. Subsequently, observations of the boys' social behavior showed that the boys who watched the violent films were more likely than the boys in the nonviolent film group to display physical and verbal aggression.

Several longitudinal studies by Rowell Huesmann and colleagues have shown that watching high amounts of violent television in middle childhood predicts aggressive behavior at later life stages (Coyne, 2007; Huesmann et al., 2003). One study involved boys and girls in five countries: Australia, Finland, Israel, Poland, and the United States. The children's TV-watching patterns and aggressive behavior were assessed at age 6 and then 5 years later at age 11. High levels of exposure to TV violence at age 6 predicted aggressive behavior at age 11 across countries, even controlling statistically for initial aggressiveness at age 6. Studies by other researchers in South Africa and the Netherlands have reported similar results (Coyne, 2007).

Huesmann's longitudinal study in the United States extends even further into the life span (Huesmann et al., 1984; Huesmann et al., 2003). Television-viewing patterns and aggressive behavior were assessed in middle childhood (age 8) and again at ages 19 and 30. A correlation was found at age 8 between aggressiveness and watching violent TV, not surprisingly. But watching violent TV at age 8 also predicted aggressive behavior in boys at age 19, and by age 30 the men who had watched high amounts of violent TV at age 8 were more likely to be arrested, more likely to have traffic violations, and more likely to abuse their children. As in the other longitudinal studies by Huesmann and colleagues, the results predicting aggressive behavior at ages 19 and 30 were sustained even when aggressiveness at age 8 was controlled statistically. So, it was not simply that aggressive persons liked to watch violent television at all three ages, but that aggressive 8-year-olds who watched high levels of TV violence were more likely to be aggressive at later ages than similarly aggressive 8-year-olds who watched lower levels of TV violence.

Perhaps the most persuasive evidence that watching television causes aggression in children comes from a natural experiment in a Canadian town. This natural experiment is the subject of the *Research Focus: TV or Not TV?* feature.

In sum, there is good reason for concern about the effects of violent media content in middle childhood. However, it should be kept in mind that media can have positive effects as well. The focus of media research is generally on the negative effects, in middle childhood as in other life stages; but with nonviolent content, and if used in moderation, media use can be a positive and enjoyable part of childhood (Van Evra, 2007).

Research Focus: TV or Not TV?

Researchers on human development are limited in the methods they can use, because they have to take into account ethical issues concerning the rights and well-being of the people they involve in their studies. For instance, the environments of human beings cannot be changed and manipulated in the same way as those of animals, especially if the change would involve a condition that is potentially unhealthy or dangerous.

One way that researchers can obtain information about human development despite this restriction is to look for opportunities for a natural experiment. A natural experiment is a condition that takes place without the researcher's manipulation or involvement, but that nevertheless provides important information to the perceptive observer.

One human development topic for which natural experiments have been available is the effect of television on children's behavior. Television use spread all over the world with remarkable speed after it was invented in the 1940s, but there are still parts of the world that do not have television or have received it only recently.

In the early 1980s, a group of Canadian researchers, led by Tannis MacBeth, observed that there were areas of Canada that still did not have TV, although it was spreading rapidly. They decided to take advantage of this natural experiment to observe children's behavior before and after the introduction of TV.

Three towns were included in the study: "Notel" (as the researchers dubbed it), which had no television at the beginning

of the study, "Unitel," which had one television channel, and "Multitel," with multiple channels. The focus of the study was on middle childhood, grades 1–5. In each grade, 5 boys and 5 girls were randomly selected in each town for participation in the study.

Each child's behavior was recorded by a trained observer for 21 one-minute periods over a period of 2 weeks across different times of day and different settings (for instance, school and home). The observers focused on aggressive behavior, using a checklist of 14 physically aggressive behaviors (such as hits, pushes, bites) and 9 verbally aggressive behaviors (such as mocking, curses, and threats). Neither children, nor parents, nor teachers were aware that the study focused on aggressive behavior or television.

In addition to the observations, the researchers obtained peer and teacher ratings of children's aggressiveness.

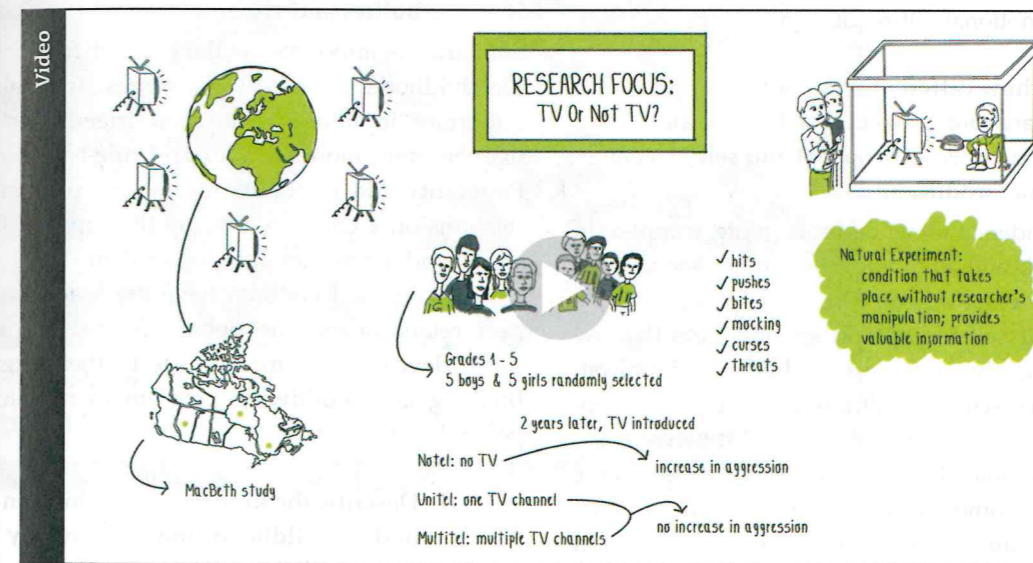
The ratings and observations took place just before the introduction of TV to Notel and then 2 years later, after Notel had obtained TV reception. The same children were included in the study at Time 1 and Time 2.

The results of the study showed clearly that the introduction of television caused children in Notel to become more aggressive. Children in Notel increased their rates of both physical and verbal aggression from Time 1 to Time 2, whereas there was no change for children in Unitel or Multitel. The increase in aggression in Notel occurred for both boys and girls. In all

three towns at Time 2, the more TV children watched, the more aggressive they were.

This natural experiment provides persuasive evidence that the relation between TV watching and aggressiveness in children involves not only correlation but causation. It would not be ethical to place children into a "TV" condition and a "Not TV" condition—especially with what we now know about TV's potential effects—but making use of the natural experiment taking place in Notel, Unitel, and Multitel allowed the researchers to obtain important results about the effects of television on children's behavior.

Watch RESEARCH FOCUS: TV OR NOT TV?



Review Question:

- The finding of greater aggression in Notel after the introduction of TV can best be interpreted as:
 - Correlation but not causation
 - Causation, because levels of aggression were assessed before and after the introduction of TV
 - Neither correlation nor causation, because children's behavior in Notel did not change once TV was introduced
 - None of the above

Practice Quiz

ANSWERS AVAILABLE IN ANSWER KEY.

- Which of the following best illustrates coregulation?
 - A child makes her bed without being asked because she knows that her parents expect the house to stay clean.
 - Siblings both run to their mother to tell her what the other did to get that child in trouble.
 - A parent tells her child how disappointed she is in her behavior.
 - A child speaks for her younger, nonverbal sibling.
- Which of the following statements about families is TRUE?
 - Most children of gay and lesbian couples are heterosexual.
 - In an effort to escape poverty, children of single-parent families have higher achievement in school than their counterparts from two-parent families.
 - Single motherhood is highest among Hispanic-Americans.
 - Compared to other countries, rates of single motherhood are lowest in Northern Europe.
- In middle childhood, _____ becomes the main reason for children ending friendships.
 - having less leisure time as a result of more homework
 - different religious backgrounds
 - violating trust
 - increased competitiveness
- Around the world, child labor _____
 - is most likely to involve working in service industries, such as cleaning
 - is highest in Germany and Spain
 - has been declining as a result of greater attention to the problem of exploitation
 - is no longer a problem as a result of an increase in the number of years children are required to go to school
- Marin, an 8-year-old boy, watches high amounts of violence on the television in his room and his parents are usually not around to monitor the content or enforce time limits on his viewing. Which of the following is most accurate based on research?
 - He is more likely to be aggressive in adulthood.
 - He is no more likely to be aggressive in adulthood than his counterparts who watch either little or no violence.
 - He is less likely to be aggressive in adulthood than his counterparts who watch either little or no violence because he was able to work out his frustrations vicariously through watching others.
 - No longitudinal research has examined this question.

Summary: Emotional and Social Development

LO 7.12 Describe the main features of emotional self-regulation and understanding in middle childhood and how other life stages compare.

Emotionally, middle childhood is generally a time of exceptional stability and contentment as emotional self-regulation becomes firmly established and emotional understanding advances. Increased involvement in contexts outside the family, such as school and sports teams, requires higher levels of emotional self-regulation.

LO 7.13 Explain how different ways of thinking about the self are rooted in cultural beliefs, and summarize how self-concept and self-esteem change in middle childhood.

Children's self-understanding becomes more complex in middle childhood, and they engage in more social comparison once they enter school. Their overall self-concepts are based on their self-concepts in specific areas that are important to them, which for most children includes physical appearance. In discussing cultural differences in conceptions of the self scholars typically distinguish between the *independent self* promoted by individualistic cultures and the *interdependent self* promoted by collectivistic cultures. High self-esteem is encouraged in individualistic cultures but discouraged in collectivistic cultures.

LO 7.14 Describe how beliefs and behavior regarding gender change in middle childhood, including cultural variations.

Children's tasks and play become more gender-segregated in middle childhood, and their views of gender roles become more sharply defined. In traditional cultures boys and girls do separate kinds of work in middle childhood, but playing in gender-specific groups takes place across cultures.

LO 7.15 Explain the distinctive features of family relations in middle childhood, and describe the consequences of parental divorce and remarriage.

Children become more independent during middle childhood as they and their parents move toward coregulation rather than parental dominance and control. Conflict with siblings peaks at this age. Divorce has become increasingly common in developed countries, and children (especially

boys) respond negatively to divorce, particularly when it includes high conflict between parents. Parents' remarriage is also experienced negatively in middle childhood, even though it often improves the family's economic situation.

LO 7.16 Explain the main basis of friendships in middle childhood, and describe the four categories of peer social status and the dynamics between bullies and victims.

Similarity is important as the basis of friendship in middle childhood, as it is at other ages. Trust also becomes important in middle childhood friendships. Children's play becomes more complex and rule-based in this stage. Popularity and unpopularity become prominent in peer relations once children develop the capacity for seriation and spend a considerable part of their day in age-graded schools. Rejected children have the greatest problems in peer relations and the poorest long-term prospects for social development, mainly due to their aggressiveness. Bullying is a worldwide problem in middle childhood peer relations.

LO 7.17 Describe the kinds of work children do in middle childhood, and explain why work patterns differ between developed and developing countries.

About 73 million children in developing countries perform paid work by the time they reach middle childhood, in a wide variety of jobs ranging from agricultural work to factory work. Children in developing countries work more than children in developed countries in middle childhood because their contribution to the family income is needed.

LO 7.18 Summarize the rates of daily TV-watching among children worldwide, and describe the positive and negative effects of television, especially the hazards related to TV violence.

Children's media use stays about the same from early childhood to middle childhood, except for a rise in time playing electronic games. A causal link between media violence and aggression in middle childhood has been established through field studies, longitudinal studies, and natural experiments. Prosocial TV content promotes qualities such as altruism and self-control.

Applying Your Knowledge as a Professional

The topics covered in this chapter apply to a wide variety of career professions. Watch these videos to learn how they apply to a counselor, a zoo director, and a court appointed special advocate for children.

Watch CAREER FOCUS: ZOO DIRECTOR



Chapter Quiz

- Which best describes sensory changes during middle childhood?
 - Hearing problems increase due to higher rates of ear infections.
 - The incidence of myopia increases.
 - Vision and hearing both improve dramatically.
 - Rates of farsightedness increase while myopia decreases.
- Rates of overweight and obesity _____.
 - are rising worldwide
 - are lowest among African American females compared to all other ethnic groups in the United States
 - are lower among Latinos and Native Americans than among European Americans
 - are lowest in the most affluent regions of the world, such as North America and Europe
- In developed countries _____.
 - rates of lead poisoning in children have fallen over the last several decades
 - middle childhood is one of the least safe and healthy times of life because of children's increased need for independence
 - the most common cause of injury is poisoning
 - asthma rates are at their lowest point in decades
- In middle childhood, _____.
 - girls are more likely than their male counterparts to be on a sports team because they are more collaborative
 - children are more likely to be involved in organized sports than they were when they were younger
 - children are less coordinated than they were in early childhood because they are going through an awkward phase
 - children have a slower reaction time than they did early in childhood because they are less impulsive