WHAT HAVE YOU LEARNED?

1. What do most preschools provide that most homes do not?
2. In child-centered programs, what do the teachers do?
3. What makes the Reggio Emilia program different from most other presch
4. Why are Montessori schools still functioning 100 years after the first such opened?
5. What are the advantages and disadvantages of teacher-directed preschoo
6. What are the goals of Head Start?
7. What are the long-term results of intervention preschools?

SUMMARY

Thinking During Early Childhood

1. Piaget stressed the egocentric and illogical aspects of thought during early childhood. He called this stage of thinking preoperational intelligence because young children do not yet use logical operations to think about their observations and experiences.

2. Young children, according to Piaget, sometimes focus on only one thing (centration) and see things only from their own viewpoint (egocentrism), remaining stuck on appearances and current conditions. They may believe that living spirits reside in inanimate objects and that nonhuman animals have the same characteristics they themselves have, a belief called animism.

3. Vygotsky stressed the social aspects of childhood cognition, noting that children learn by participating in various experiences, guided by more knowledgeable adults or peers. Such guidance assists learning within the zone of proximal development, which encompasses the knowledge children are close to understanding and the skills they can almost master.

4. According to Vygotsky, the best teachers use various hints, guidelines, and other tools to provide a child with a scaffold for new learning. Language is a bridge that provides social mediation between the knowledge that the child already has and the learning that the society hopes to impart. For Vygotsky, words are tools for learning.

5. An important part of developing cognition during early childhood is the emergence of executive function, or cognitive control, as children learn to regulate and control their sensory impulses in order to use their minds more effectively.

6. Computers can aid cognitive advancement, but they also can impede it. Too much screen time and too little time for individualized human interaction slow down learning.

7. Children develop theories, especially to explain the purpose of life and their role in it. One theory about children's thinking is called "theory-theory"—the hypothesis that children develop theories because all humans innately seek explanations for everything they observe.

8. An example of the developing cognition of your theory of mind—an understanding of what others ing. Theory of mind begins at around age 4, partly maturation of the brain. Culture and experiences its development.

Language Learning

9. Language develops rapidly during early childhood period but not a critical one for language learning increases dramatically, with thousands of words ad ages 2 and 6. In addition, basic grammar is mastered

10. The child's ability to learn language is evident in (the quick use of new vocabulary words) and in overr (applying the rules of grammar even when they are r

11. Many children learn to speak more than one la ing cognitive as well as social advantages. Early chi best time to learn two languages. The benefits of are lifelong. Pronunciation lags behind production behind comprehension.

Early-Childhood Schooling

12. Organized educational programs during early c vance cognitive and social skills, although specifics deal. The quality of a program cannot be judged by by appearance.

13. Montessori and Reggio Emilia are two child-c grams that began in Italy and are now offered in m They stress individual interests of each child, inclu play, inspired by Piaget and Vygotsky.

14. Behaviorist principles led to many specific teacher-directed programs. Children learn to liste ers and become ready for kindergarten. Teacher-d grams are preferred by many parents and legislato are increasingly popular—to the consternation of developmentalists.

ad Start is a U.S. federal government program primar- low-income children. Longitudinal research finds that ildhood education reduces the risk of later problems, such ding special education. High-quality programs increase elihood that a child will become a law-abiding, gainfully ed adult.

16. Many types of preschool programs are successful. It is the quality of early education that matters. The training, warmth, and continuity of early-childhood teachers benefit children in many ways.

17. Some nations provide early education for all 3- and 4-year-olds. The United States is behind on this metric, with only about half of all 4-year-olds in preschool, and far fewer 3-year-olds.

TERMS

ational intelligence
2)
c thought (p. 252)
n (p. 252)
on (p. 252)
rism (p. 252)
n appearance (p. 252)
static reasoning (p. 253)
irreversibility (p. 253)
conservation (p. 253)
zone of proximal development (ZPD) (p. 255)
scaffolding (p. 255)
overimitation (p. 256)
private speech (p. 257)
social mediation (p. 258)
executive function (p. 259)
theory-theory (p. 260)
theory of mind (p. 260)
fast-mapping (p. 265)
overregularization (p. 266)
pragmatics (p. 266)
Montessori schools (p. 271)
Reggio Emilia (p. 271)
Head Start (p. 273)

ICATIONS

t way to understand thinking in early childhood is to lis- child, as Applications 1 and 2 require. If some students access to children, they should do Application 3 or 4.

cate one of Piaget's conservation experiments. The easi- is conservation of liquids (Figure 9.1). Work with a child e 5 who tells you that two identically shaped glasses con- same amount of liquid. Then carefully pour one glass of to a narrower, taller glass. Ask the child if one glass now more or if the glasses contain the same amount.

monstrate how rapidly language is learned, show a pre- hild several objects and label one with a nonsense word child has never heard. (*Toma* is often used; so is *wug*.) se a word the child does not know, such as *wrench*, or the name of a coin from another nation. Test the st-mapping.

3. Theory of mind emerges at about age 4, but many adults still have trouble understanding other people's thoughts and motives. Ask several people why someone in the news did whatever he or she did (e.g., a scandal, a crime, a heroic act). Then ask your informants how sure they are of their explanation. Compare and analyze the reasons as well as the degrees of certainty. (One person may be sure of an explanation that someone else thinks is impossible.)

4. Think about an experience in which you learned something that was initially difficult. To what extent do Vygotsky's concepts (guided participation, zone of proximal development) explain the experience? Write a detailed, step-by-step account of your learning process as Vygotsky would have described it.

SUMMARY

Emotional Development

1. Emotional regulation is crucial during early childhood. It occurs in Erikson's third developmental stage, initiative versus guilt. Children normally feel pride when they demonstrate initiative but feel guilt or even shame at an unsatisfactory outcome.

2. Emotional regulation is made possible by maturation of the brain, particularly of the prefrontal cortex, as well as by experiences with parents and peers.

3. Intrinsic motivation is apparent in a preschooler's concentration on a drawing or a conversation with an imaginary friend. It may endure when extrinsic motivation stops.

Play

4. All young children enjoy playing—preferably with other children of the same sex, who teach them lessons in social interaction that their parents do not.

5. Active play takes many forms, with rough-and-tumble play fostering social skills and sociodramatic play developing emotional regulation.

6. Prosocial emotions lead to caring for others; antisocial behavior includes instrumental, reactive, relational, and bullying aggression.

Challenges for Caregivers

7. Three classic styles of parenting have been identified: authoritarian, permissive, and authoritative. Generally, children are more successful and happy when their parents express warmth and set guidelines.

8. A fourth style of parenting, neglectful/uninvolved, is always harmful. The particulars of parenting reflect the culture as well as the temperament of the child.

9. Parental punishment can have long-term consequences, with both corporal punishment and psychological control teaching lessons that few parents want their children to learn.

10. Even 2-year-olds correctly use sex-specific labels. Young children become aware of gender differences in clothes, toys, playmates, and future careers.

11. Freud emphasized that children are attracted to the other-sex parent and eventually seek to identify, or align themselves, with the same-sex parent. Behaviorists hold that gender-related behaviors are learned through reinforcement and punishment (especially for males) and social modeling.

12. Cognitive theorists note that simplistic preoperational thinking leads to gender schemas and therefore stereotypes. Sociocultural theory explains that every society and culture organizes life in gendered ways. By belonging to that culture, children learn those social norms. Evolutionary theory contends that biological sex differences are crucial for the survival and reproduction of the species.

13. All five theories of gender-role development are plausible, which poses a challenge for caregivers who must determine which set of values they choose to teach.

KEY TERMS

emotional regulation (p. 282)
self-concept (p. 282)
effortful control (p. 282)
initiative versus guilt (p. 282)
intrinsic motivation (p. 284)
extrinsic motivation (p. 284)
imaginary friends (p. 285)
rough-and-tumble play (p. 288)
sociodramatic play (p. 289)
empathy (p. 290)
prosocial behavior (p. 290)
antisocial behavior (p. 291)
instrumental aggression (p. 291)
reactive aggression (p. 291)
relational aggression (p. 292)
bullying aggression (p. 292)
authoritarian parenting (p. 294)
permissive parenting (p. 294)
authoritative parenting (p. 294)
neglectful/uninvolved parenting (p. 294)
corporal punishment (p. 297)
psychological control (p. 297)
time-out (p. 299)
induction (p. 299)
sex differences (p. 300)
gender differences (p. 300)
phallic stage (p. 301)
Oedipus complex (p. 301)
superego (p. 302)
identification (p. 302)
gender schema (p. 304)

APPLICATIONS

1. Adults tend to believe that the way their parents raised them helped them become the people they are. Ask three people how their parents encouraged and disciplined them, and assess whether that indeed had an impact on adult personality.

2. Gender indicators often go unnoticed. Go to a public place (park, restaurant, busy street) and spend at least 10 minutes recording examples of gender differentiation, such as articles of clothing, mannerisms, interaction patterns, and activities. Quantify what you see, such as baseball hats on eight males and two females. Or (better, but more difficult) describe four male–female conversations, indicating gender differences in length and frequency of talking, interruptions, vocabulary, and so on.

3. Analyze the intrinsic and extrinsic motivation for attending college. Do you think that one type or the other is more influential in your achievement? Explain.

SUMMARY

A Healthy Time

1. Middle childhood is a time of steady growth and few serious illnesses. During these years, health habits, including daily oral care and good nutrition, protect children from later health problems.

2. Physical activity aids health and joy in many ways. However, current social and environmental conditions make informal neighborhood play uncommon and school exercise less prevalent than formerly. Children who most need physical activity may be least likely to have it.

3. Childhood obesity is a worldwide epidemic. Although the size and shape of a person's body is partly genetic, too little exercise and too much unhealthy food are the main reasons that today's youth are heavier than their counterparts of 50 years ago. Parents and policies share the blame.

4. The incidence of asthma is increasing overall. The causes include genes and the microbiome; the triggers include specific allergens such as pollution and house dust.

5. Brains continue to develop during middle childhood. Experience enhances coordination of brain impulses, and selective attention develops as children play.

Children with Special Brains and Bodies

6. Developmental psychopathology uses an understanding of typical development to inform the study of unusual development. Four general lessons have emerged: Abnormality is normal; disability changes over time; a condition may get better or worse later on; diagnosis depends on context.

7. IQ tests quantify intellectual aptitude. Mental age rises as chronological age does, with children whose mental age is more than or less than their chronological age having high or low IQ scores. Most IQ tests emphasize language and logic, and they predict school achievement. Scores change over time, as culture and experience enhance particular abilities.

8. Achievement tests measure accomplishment, often in specific academic areas. Aptitude and achievement are correlated, both for individuals and for nations, and have risen in the past decades as Flynn documented.

9. Critics of IQ testing contend that intelligence is manifested in multiple ways, which makes *g* (general intelligence) too narrow and limited. Some psychologists stress that people have multiple intelligences, including creative and practical abilities. Gardner describes nine distinct intelligences.

10. Children with attention-deficit/hyperactivity disorder (ADHD) have potential problems in three areas: inattention, impulsiveness, and activity. Stimulant medication helps many children with ADHD to concentrate and learn, but any drug use by children is controversial.

11. DSM-5 recognizes learning disorders that impair learning in school, specifically dyslexia (unusual difficulty with reading), dyscalculia (unusual difficulty with math), and dysgraphia (unusual difficulty with writing).

12. Children on the autism spectrum typically have problems with social interaction and language. They often exhibit restricted, repetitive patterns of behavior, interests, and activities. Many causes are hypothesized. Autism spectrum disorder (ASD) originates in the brain, with genetic and prenatal influences.

Special Education

13. About 13 percent of all school-age children in the United States receive special education services. These begin with an IEP (individual education plan) and assignment to the least restrictive environment (LRE), usually within the regular classroom.

14. Diagnosis and special education typically occur much later than seems best. Parents, teachers, and professionals need to come together to help children with special needs.

15. Some children are unusually intelligent, talented, or creative, and some states and nations provide special education for them. The traditional strategy—skipping a grade—no longer seems beneficial, but special classes for gifted and talented children are controversial.

KEY TERMS

middle childhood (p. 312)
selective attention (p. 313)
reaction time (p. 314)
childhood overweight (p. 315)
childhood obesity (p. 315)
asthma (p. 316)
developmental psychopathology (p. 320)
comorbid (p. 320)
aptitude (p. 320)
intelligence (p. 320)
achievement test (p. 321)
Flynn effect (p. 321)
multiple intelligences (p. 322)
neurodiversity (p. 323)
multifinality (p. 323)
equifinality (p. 323)
attention-deficit/hyperactivity disorder (ADHD) (p. 324)
specific learning disorder (p. 325)
dyslexia (p. 327)
dyscalculia (p. 327)
autism spectrum disorder (ASD) (p. 327)
least restrictive environment (LRE) (p. 331)
response to intervention (RTI) (p. 331)
individual education plan (IEP) (p. 331)
acceleration (p. 334)

Laura Embry/ZUMA Press/Newscom

Loved and Rewarded Melissa Ochoa, a third-grade public school teacher near San Diego, California, is shown moments after she learned that she won $5,000 as a star educator. Which do you think is more rewarding to her, the money or the joy of her students?

all children attend the local school, whose resources and standards are equal to those of the other schools in that nation. The parents' job is to support the school's learning by checking homework and so on.

In the United States, however, local districts provide most of the funds and make the rules, and parents, as voters and volunteers, are often active in their children's schools. Although most U.S. parents send their children to the nearest public school, about one-third send their children to private schools or charter schools, or educate them at home. Parental choices may vary for each child, depending on the child's characteristics, the parents' current economic status, and the political rhetoric of the moment. Every option has strengths and weaknesses, both for the child and for society.

It is difficult for parents to decide the best school for their child, partly because neither the test scores of students in any of these schools, nor the moral values a particular school espouses, correlate with the cognitive skills that developmentalists seek to foster (Finn et al., 2014). Thus, parents may choose a school that advertises what the parents value, but the school may not actually be the best educational experience for their child.

Statistical analysis raises questions about home schooling and about charter schools (Lubienski et al., 2013; Finn et al., 2014), but as our discussion of the Common Core, TIMSS, and so on makes clear, the evidence allows many interpretations. As one review notes, "the modern day, parent-led home-based education movement . . . stirs up many a curious query, negative critique, and high praise" (Ray, 2013, p. 261).

Schoolchildren's ability to be logical and teachable, now that they are no longer preoperational and egocentric, makes this a good time to teach them—that is, to learn whatever adults deem important. Parents, politicians, and developmental experts all agree that school is vital for development, but disagreements about teachers and curriculum—hidden or overt—abound.

WHAT HAVE YOU LEARNED?

1. What do all nations have in common regarding education in middle childhood?
2. How does the hidden curriculum differ from the stated school curriculum?
3. What are the TIMSS and the PIRLS?
4. What are the national and international differences in school achievement of girls and boys?
5. What are the strengths and liabilities of national and international tests?
6. What are the differences among charter schools, private schools, and home schools?
7. Which of the ten controversies are most contentious in your community, and why?

SUMMARY

Building on Theory

1. According to Piaget, middle childhood is the time of concrete operational thought, when egocentrism diminishes and logical thinking begins. School-age children can understand classification, conservation, and seriation.

2. Vygotsky stressed the social context of learning, including the specific lessons of school and learning from peers and adults. Culture affects not only what children learn but also how they learn.

3. An information-processing approach examines each step of the thinking process, from input to output, using the computer as a model. This approach is useful for understanding memory, perception, and expression.

4. Memory begins with information that reaches the brain from the sense organs. Then selection processes, benefiting from past experience, allow some information to reach working memory. Finally, long-term memory indefinitely stores images and ideas that can be retrieved when needed.

5. A broader knowledge base, logical strategies for retrieval, and faster processing advance every aspect of memory and cognition. Control processes are crucial. Children become better at controlling and directing their thinking as the prefrontal cortex matures.

Language

6. Language learning advances in many practical ways, including expanded vocabulary, as words are logically linked together and as an understanding of metaphors begins.

7. Children excel at pragmatics during middle childhood, often using one code with their friends and another in school. Many children become fluent in the school language while speaking their first language at home.

8. Children of low SES are usually lower in linguistic skills, primarily because they hear less language at home and because adult expectations for their learning are low. This is not inevitable for low-SES families, however.

Teaching and Learning

9. Nations and experts agree that education is critical during middle childhood. Almost all of the world's children now attend primary school and learn to read, write, and calculate. Many other aspects of curriculum vary from nation to nation and, within the United States, from school to school.

10. The hidden curriculum may be more influential on children's learning than the formal curriculum. Some believe elementary schools favor girls, although internationally, gender similarities seem to outweigh gender differences.

11. International assessments are useful as comparisons, partly because few objective measures of learning are available. Reading is assessed with the PIRLS, math and science with the TIMSS. On both measures, children in East Asia excel, and children in the United States are in the middle ranks.

12. In the United States, the National Assessment of Educational Progress (NAEP) is a test that may raise the standard of education. The Common Core, developed with the sponsorship of the governors of the 50 states, was an effort to raise national standards and improve accountability, but it is now controversial.

13. Nations differ in how much overall control the central government has on education and how much choice and influence parents have. Unlike almost all other countries, in the United States, each state, each district, and sometimes each school retains significant control. Education is a political issue more than a developmental one.

14. Disagreements about curriculum and sponsorship of school for young children are frequent. Some parents choose charter schools, others prefer private schools, and still others opt for home schooling. More research is needed to discover what is best.

KEY TERMS

concrete operational thought (p. 340)
classification (p. 340)
seriation (p. 340)
automatization (p. 344)
sensory memory (p. 345)
working memory (p. 345)
long-term memory (p. 346)
knowledge base (p. 346)
control processes (p. 346)
English Language Learners (ELLs) (p. 349)
immersion (p. 349)
bilingual education (p. 349)
ESL (English as a Second Language) (p. 349)
hidden curriculum (p. 353)
Trends in Math and Science Study (TIMSS) (p. 356)
Progress in International Reading Literacy Study (PIRLS) (p. 356)
National Assessment of Educational Progress (NAEP) (p. 359)
voucher (p. 361)
charter school (p. 361)
home schooling (p. 361)

APPLICATIONS

1. Visit a local elementary school and look for the hidden curriculum. For example, do the children line up? Why or why not, when, and how? Does gender, age, ability, or talent affect the grouping of children or the selection of staff? What is on the walls? Are parents involved? If so, how? For everything you observe, speculate about the underlying assumptions.

2. Interview a 6- to 11-year-old child to find out what he or she knows *and understands* about mathematics. Relate both correct and incorrect responses to the logic of concrete operational thought.

3. What do you remember about how you learned to read? Compare your memories with those of two other people, one at least 10 years older and the other at least 5 years younger than you are. Can you draw any conclusions about effective reading instruction? If so, what are they? If not, why not?

4. Talk to two parents of primary school children. What do they think are the best and worst parts of their children's education? Ask specific questions and analyze the results.