

Chapter 7

Early Childhood: Physical and Cognitive Development

INTRODUCTION

Chapters 4, 5, and 6 dealt with the period of infancy. Chapter 7 is the first of two chapters focusing on early childhood—the time between ages 2 and 6. During this period, children acquire autonomy, evolve new ways of relating to other people, and gain a sense of themselves and their effectiveness in the world. Several vital topics are examined, including:

- **Physical development and health concerns.** Underpinning cognitive and social skills are continued physical growth and the perfection of gross and fine motor skills that promote coordination of movement. The expansion of their physical world allows children the opportunity for affecting their environment. Health issues such as asthma, HIV/AIDS, and diet are also examined.
- **Cognitive development.** Various forms of intelligence are discussed, as is the nature-nurture controversy surrounding the level of an individual's intelligence. The early development of intelligence is traced in accordance with Piaget's observations. More recent research concerning children's conceptual foundations for learning is also presented.
- **Information processing and memory.** Early memory, information processing, metacognition, and metamemory are discussed in detail. The memory strategies of categorizing and rehearsing are illustrated in this section as well.
- **Cognitive foundations for social interaction.** The ways in which children acquire conceptions of right and wrong are discussed. Roles provide social guidelines that define an individual's obligations as well as expectations. The self provides an individual with the capacity to observe, respond to, and direct his or her morals and behavior.

LEARNING OBJECTIVES

After completing Chapter 7, you should be able to:

1. Describe physical growth and motor skill development in early childhood regarding:
rate of growth

self-stabilizing quality

impact of coordination
2. Briefly describe the development of gross motor skills in children from 2 to 5 years old.
3. Briefly explain aspects of sensory development of children from 2 to 7 years old.
4. Briefly describe the resources available for children with developmental delays.
5. Discuss the role of nutrition in children's development.

6. Describe the implications of changing demographics on children's health.

7. Discuss the common childhood disabilities and disorders that compromise healthy development.

8. Briefly explain the following developing cognitive abilities of children from 2 to 7 years old:
 - intelligence

 - intelligence as a general factor

 - intelligence as a composite of abilities

 - the two-factor theory of intelligence

 - Gardner's nine intelligences (intellectual profile)

 - intelligence as a process

 - intelligence as information processing

9. Psychologists have conflicting views about the impact of heredity and environment on intelligence. Briefly describe the following positions:
 - heredity (nature) is significant

 - major findings from studies of identical and fraternal twins

 - nurture (environment) is significant

contemporary scientific consensus

Bouchard (1990)

Jencks' (1972) gene-environment covariance

10. Define what Piaget meant by the *preoperational period* and characterize the thinking of the preoperational child by describing:

use of symbols

conservation performance

centration

state vs. transformational reasoning

nonreversibility

egocentrism vs. sociocentrism

11. Discuss recent research on children's theory of mind.

12. Discuss the conceptual foundations for learning in young children regarding:

causality

number concepts

13. List signs of atypical developmental delay.

14. Describe the components of language acquisition.

phonology

morphology

syntax

pragmatics

semantics

15. Discuss reasons why a child might be a late talker.

16. Define Vygotsky's zone of proximal development (ZPD).

17. Explain the hypothesis of childhood amnesia.

18. Define each of the five major systems of memory.

procedural

working

perceptual representation

semantic

episodic

19. Describe the following information-related concepts:

recall

recognition

facilitation of relearning

sensory information storage

short-term memory

long-term memory

20. Explain how *memory* occurs, and distinguish between:

metacognition

metamemory

21. Describe rehearsal and categorizing as memory strategies, and discuss the Rossi and Wittrock study.

22. Describe Piaget's concept of moral reasoning, including the following terms:

reciprocity

motor stage

egocentric stage

intentionality

WEB SITES

The following Web sites deal with some of the major concepts and issues presented in Chapter 7. Additional resources can be found on the text's Web site at <http://www.mhhe.com/crandell8>.

American Academy of Pediatrics
<http://www.aap.org/>

National Institute for Early Education Research
<http://nieer.org/yearbook/contents/>

National Association for the Education of Young Children
<http://www.naeyc.org/careerforum/>

Journal of Early Intervention
<http://alliedhealth.lsuhs.edu/jei/>

Early Childhood Education Journal
<http://springerlink.metapress.com/>

Early Childhood Research and Practice
<http://ecrp.uiuc.edu/>

Contemporary Issues in Early Childhood
<http://www.wwwords.co.uk/ciec/index.htm?>

The Food Allergy and Anaphylaxis Network
<http://www.foodallergy.org/>

SELF TESTS

Matching

Match the key terms with their definitions:

- | | | |
|--------------------------|---------------------------|---------------------------------------|
| a. anaphylaxis | l. morphology | w. semantics |
| b. Asperger's syndrome | m. multiple intelligences | x. sensory information storage |
| c. centration | n. phonology | y. short-term memory |
| d. conservation | o. pragmatics | z. syntax |
| e. egocentrism | p. preoperational period | aa. theory of mind |
| f. intelligence | q. private speech | bb. two-factor theory of intelligence |
| g. intelligence quotient | r. recall | cc. zone of proximal development |
| h. long-term memory | s. receptive language | |
| i. memory | t. reciprocity | |
| j. metacognition | u. rehearsal | |
| k. metamemory | v. reversibility | |

- | | |
|--|--|
| 1. ____ helping children with tasks that are a little too hard for them to accomplish alone | 11. ____ deals with the meaning of words as well as the rules for combining words together meaningfully |
| 2. ____ a stage of cognitive development typified by an egocentric view of the world | 12. ____ individuals' awareness and understanding of their memory processes |
| 3. ____ refers to a child's failure to recognize that operations can be turned back to an earlier state | 13. ____ individuals' awareness and understanding of their own mental processes |
| 4. ____ life-threatening allergy | 14. ____ mild form of autism |
| 5. ____ the term used when a word changes form | 15. ____ language that can be understood |
| 6. ____ the type of language that can be used in different social contexts | 16. ____ refers to the way that words must be ordered in a sentence |
| 7. ____ the ability to understand that others see the world differently from oneself | 17. ____ requires the recognition that the quantity or amount of something stays the same despite changes in appearance |
| 8. ____ a global capacity to understand the world, think rationally, and cope resourcefully with the challenges of life | 18. ____ the process whereby preoperational children concentrate on one feature of a situation and neglect other aspects |
| 9. ____ a lack of awareness that there are viewpoints other than one's own | 19. ____ the retention of information for a very brief period, usually not more than 30 seconds |
| 10. ____ a theory which concludes that there is a general intellectual ability employed for abstract reasoning and problem solving | 20. ____ the retention of information for an extended period of time |

21. ____ the retention of what has been experienced
22. ____ the stage of language development where children move beyond two-word sentences and begin to display a real understanding of the rules that govern language and begin to master the different sounds within the language
23. ____ when information from the senses is preserved in the sensory register just long enough to permit the stimuli to be scanned for processing, generally less than two seconds
24. ____ ratio of mental over chronological age
25. ____ nine distinct abilities that interact
26. ____ speech directed towards self, or nobody
27. ____ remembering previous information
28. ____ child's capacity to attach meaning to current situation from previous situations
29. ____ process of repeating information to self

Multiple Choice

Circle the letter of the response that best completes or answers each of the following statements and questions.

Factual Questions

1. The most accurate statement regarding physical growth is that
 - a. children grow in an even, sequential pattern
 - b. the only time of fast growth is in the teen years
 - c. about twice as much growth occurs between the ages of 1 and 3 as between the ages of 3 and 5
 - d. slender children tend to grow faster than the average child, while broadly built children grow more slowly
2. Which of the following is not a correct statement concerning children's coordination?
 - a. Some 5 percent of youngsters have noticeable difficulties with coordination.
 - b. Clumsy boys have just as many friends as their coordinated peers.
 - c. Children with coordination problems are at a greater risk for significant social problems.
 - d. Motor skills form a large part of a youngster's self-concept.
3. In terms of activity performance, which of the following would be an example of a motor-skill developmental delay for a typical 3-year-old?
 - a. cannot ride a tricycle
 - b. cannot turn pages of a book
 - c. cannot use a scissors to cut straight line
 - d. cannot copy squares

4. At age 5, a child's brain will
 - a. weigh 30 percent of an adult's
 - b. weigh 60 percent of an adult's
 - c. weigh 90 percent of an adult's
 - d. weigh 99 percent of an adult's

5. The leading serious chronic pediatric disease, asthma, affects _____ percent of children.
 - a. 50
 - b. 39
 - c. 42
 - d. 9

6. Wechsler's description of intelligence is
 - a. the possession of a fund of knowledge
 - b. a capacity for acquiring knowledge and functioning rationally and effectively
 - c. a type of metamemory
 - d. the retention of what has been experienced

7. Who is the psychologist who viewed intelligence as a general ability and devised the first widely used intelligence test?
 - a. Charles Spearman
 - b. David Wechsler
 - c. J. P. Guilford
 - d. Alfred Binet

8. Spearman advanced an opposing view of intelligence; that is, intelligence is
 - a. a single, general intellectual capacity
 - b. a general intellectual ability employed for reasoning and problem solving with special factors peculiar to given tasks
 - c. identified as 120 distinct factors
 - d. seven distinct intelligences: linguistic, logical-mathematical, spatial, musical, body-kinesthetic, and two forms of personal intelligence

9. Psychologists who view intelligence as a process, rather than as an ability, are not so much interested in _____ we know, but in _____ we know.
 - a. what; how
 - b. why; how
 - c. how; what
 - d. what; when

10. Research done by Sternberg, who has an information-processing view of intelligence (where people can solve problems in everyday life as well as on tests), holds that
 - a. some skills are trainable
 - b. gifted children can ignore irrelevant information
 - c. gifted and nongifted children can improve their performance
 - d. all of these

11. Based on data on IQ performance from family resemblance studies, Bouchard and his colleagues found that which correlation was the highest?
- between parent and child, same sex
 - between dizygotic, same-sex twins
 - between monozygotic twins, reared together
 - between monozygotic twins, reared apart
12. A numerical expression of the degree of relationship between two variables (events, conditions) that tells the extent to which two measures tend to go together is called the _____ coefficient.
- standard deviation
 - median deviation
 - correlation
 - mean covariance
13. Environmentalists, who believe intelligence is learned, contend that studies of adopted children are biased because adoptive agencies traditionally attempt to place these children in an environment that is
- economically superior to the one in which they were born
 - geographically different from the one in which they were born
 - religiously, ethnically, and racially similar to the one in which they were born
 - linguistically similar to the one in which they were born
14. Sociologist C. Jencks has introduced the third element of gene-environment interaction to the nature-nurture controversy, which is
- associated primarily with genetic factors
 - associated primarily with environmental factors
 - a result of the combining of genes and environment
 - a measure of family resemblance
15. Piaget said children first develop the capacity to represent the external world internally through symbols during which period?
- preoperational
 - sensorimotor
 - concrete operational
 - formal operational
16. The concept that the quantity or amount of something stays the same regardless of changes in its shape or position is called
- conservation
 - transformation
 - roles
 - centering
17. Recent critiques of Piaget's theory focus on a child's ability to
- talk to others
 - decenter
 - be sociocentric
 - be preoperational

18. Wellman's research on the theory of mind reveals that 3-year-olds can
- predict people's future actions
 - explain their past actions
 - both a and b
 - neither a nor b
19. Children around 7 and 8 years old are able distinguish between cause and effect, which is known as
- causality
 - recall
 - inherent knowledge
 - recognition
20. In measuring children's counting capabilities, contemporary developmental psychologists (in contrast to Piaget) would support that
- there is no connection between the acquired ability to count and operations the child is capable of
 - preschoolers seem to have an implicit understanding for number concepts
 - counting is not an "easy" cognitive task for young children
 - young children seem to possess some basic knowledge of "quantity" after they acquire such knowledge from their experiences
21. When a child understands that words must go in a specific order, then that child has achieved an understanding of
- morphology
 - phonology
 - syntax
 - pragmatics
22. Chomsky's LAD stands for
- language assimilation development
 - linguistic appropriation device
 - linguistic accelerated development
 - language acquisition device
23. Vygotsky's concept known as the zone of proximal development (ZPD) states that
- development takes place at the approximate zone of human interaction
 - children's developmental zone is approximately between the ages of 2 and 7
 - tasks that are learned alone are better understood than those learned with others
 - tasks that are too difficult to master alone are mastered with the help of a skilled partner
24. Information from the senses is preserved just long enough to permit the stimuli to be scanned for processing. This provides a relatively complete, literal copy of the physical stimulus and best describes
- short-term memory
 - sensory information storage
 - long-term memory
 - rehearsal

25. Individual awareness and understanding of one's mental process is _____; whereas understanding one's own memory processes is _____.
- short-term memory; long-term memory
 - metacognition; short-term memory
 - metamemory; metacognition
 - metacognition; metamemory
26. A memory strategy that helps children organize information for recall and includes rhyming, clustering, and ordering is
- rehearsal
 - categorizing
 - meta-rehearsal
 - syntax recall
27. Piaget asserts that _____ is the foundation for social interchange in children.
- egocentrism
 - reciprocity
 - autonomy
 - morality

Conceptual Questions

1. Andy is a 6-year-old boy who has had coordination problems since he was a toddler. His parents and school officials are concerned about the impact of his clumsiness because studies seem to predict that Andy
- will not enjoy athletics as he ages
 - will have fewer friends than his coordinated peers
 - will not achieve as well academically
 - will seriously injure himself eventually
2. You are a first-grade teacher, and you give your students a battery of aptitude tests. Their performance on each test is highly correlated with their performance on all their other tests. Therefore you might conclude that your test battery
- successfully tapped into the *g* factor
 - successfully tapped into the *s* factor
 - was not valid because it measures only composite factors
 - measured primarily mental abilities
3. According to the hereditarian position, we would expect the correlation between the IQ scores of two unrelated children living in the same home to be
- higher than the correlation of fraternal twins raised in separate homes
 - about the same as that of unrelated children raised in separate homes
 - very high, because the same environment causes people to be similar
 - unpredictable because we know nothing of their biological backgrounds

4. There is a positive correlation between the number of bars in a city and the number of churches; that is, as the number of bars increases, so does the number of churches. One would be in error to suggest that an increase in bars causes more churches, or that the churches cause the bars to open. This is because
- the correlation coefficient isn't high enough
 - churches are only associated with activities of high moral standards
 - the positive correlation doesn't reveal causation
 - all of these
5. Stephen claims that his mother gave his brother a bigger piece of cake than he got. However, Stephen is pacified when his mother cuts his piece in two. He defiantly says to his brother, "Now I've got more." Stephen's statement shows
- good perspective-taking ability
 - sociocentric behavior
 - associative learning but no conceptual learning
 - lack of conservation
6. A young child sees two rows of pennies and says that each row contains five pennies. When the bottom row is spread out, she says that it has more pennies, which could be considered an example of
- centration
 - encoding
 - reversibility
 - metamemory
7. When asked what to get Daddy for his birthday, a preoperational child might suggest something like candy or a toy. This is due to the fact that
- they are people-oriented
 - they are egocentric
 - they are deeply affected
 - they are altruistic
8. Stephanie, 18 months, sees her mother looking out the window. Stephanie goes over and points to a bird outside. She might be demonstrating
- nonegocentric behavior
 - egocentrism
 - centering
 - typical sharing
9. Christine has just told Michael, her 3-year-old, that they are going to give Daddy a surprise party. When Michael sees his Daddy the day before the party, he shouts, "Are you surprised?!" Michael is exhibiting
- altruistic behavior
 - theory of mind
 - lack of theory of mind
 - environmental adaptiveness

10. Many current developmental psychologists disagree with Piaget's views that young children have limited understanding of cause and effect. According to these contemporary researchers, which of the following statements would a typical 4-year-old make?

- a. "The street makes the car go."
- b. "If I cry, Mommy will come."
- c. "The moon comes to look at me."
- d. "The river runs because it is happy."

11. If intelligence is primarily determined by environmental factors, Kamin would say

- a. fraternal twins will be more similar to one another than regular siblings
- b. fraternal twins raised in differing environments would be more similar to one another than regular siblings
- c. identical twins who were highly intelligent would also be highly creative
- d. more could be done to improve people's abilities through education and social arrangement

12. Julie, a 40-year-old woman, is concerned about memory loss because she can only recall bits and pieces of her life up until the fourth grade. After that, she remembers events very clearly. Her neighbor, a psychologist, has told her not to be concerned, as this phenomenon is called

- a. selective recall
- b. childhood amnesia
- c. normal aging forgetfulness
- d. sensory information overload

13. Serge is a college student "cramming" for a final exam in psychology (consisting mainly of recognition of terminology and definitions). Although he received an "A" on his exam in May, he is surprised to learn in June that he could not remember the definition of many terms. Serge's retention of information is described as

- a. long-term memory
- b. working memory
- c. focused memory
- d. semantic memory

14. A second-grade child realizes that she will have to spend more time studying words she has misspelled than words she can spell correctly. This child is using

- a. sensory information storage
- b. recognition memory
- c. metacognition
- d. metamemory

15. A child is trying to remember her new friend's name, and she repeats it over and over. The child is using

- a. rehearsing
- b. metamemory
- c. a clustering form of categorization
- d. a serial ordering form of categorization

16. Dee states that she is intrapersonally intelligent. This means she will display
- knowledge of how to deal with others
 - knowledge of how to deal with herself
 - knowledge of people's minds
 - knowledge of herself
17. According to the theory of mind research, a 3-year-old would not be able to play a practical joke on someone because he or she would not understand
- what humor is
 - that people's actions stem from representations of the world
 - that the environment is objective reality
 - cause and effect
18. When a child learns to read by engaging in that activity with an adult over time, Vygotsky would say that is an example of
- language acquisition device
 - decentering
 - zone of proximal development
 - theory of mind
19. When a child says, "Let me see my phone number, so I'll remember it," she is using
- metanarrative
 - metatheory
 - metacognition
 - metamemory
20. The reason that a young child cannot differentiate between something done accidentally or intentionally is due to
- morality based on deception
 - morality based on perception
 - morality based on reciprocity
 - morality based on context

ANSWERS FOR SELF-TESTS

Matching

- | | | |
|--------|-------|-------|
| 1. cc | 11. w | 21. i |
| 2. p | 12. k | 22. n |
| 3. v | 13. k | 23. x |
| 4. a | 14. b | 24. g |
| 5. l | 15. s | 25. m |
| 6. o | 16. z | 26. q |
| 7. aa | 17. d | 27. r |
| 8. f | 18. c | 28. t |
| 9. e | 19. y | 29. u |
| 10. bb | 20. h | |

Multiple Choice

Factual

- | | | |
|------|-------|-------|
| 1. c | 10. d | 19. a |
| 2. b | 11. c | 20. b |
| 3. b | 12. c | 21. c |
| 4. c | 13. c | 22. d |
| 5. d | 14. c | 23. d |
| 6. b | 15. a | 24. b |
| 7. d | 16. a | 25. d |
| 8. b | 17. c | 26. b |
| 9. a | 18. d | 27. b |

Conceptual

- | | | |
|------|-------|-------|
| 1. b | 8. a | 15. a |
| 2. a | 9. c | 16. d |
| 3. d | 10. b | 17. b |
| 4. c | 11. d | 18. c |
| 5. d | 12. b | 19. d |
| 6. a | 13. b | 20. b |
| 7. b | 14. c | |

