

## Chapter 2

### COGNITIVE AND LINGUISTIC DEVELOPMENT

<b>CHAPTER OUTCOMES</b>	<b>RELEVANT TEST BANK ITEMS</b>
2.1 Describe four principles portraying the general nature of child development and the interactive roles of heredity and environment in guiding it.	Multiple Choice 1–6
2.2 Explain how the brain and its development influence children’s thinking and learning.	Multiple Choice 7–14 Essay 85
2.3 Apply Piaget’s theory of cognitive development to classroom practice.	Multiple Choice 15–45 Essay 86–88
2.4 Apply Vygotsky’s theory of cognitive development to classroom practice.	Multiple Choice 46–69 Essay 89–91
2.5 Describe developmental changes in language during the school years, and explain how you might adapt instruction to children with diverse linguistic abilities and needs.	Multiple Choice 70–84 Essay 92, 93

## Multiple-Choice Questions

- 1. Most developmental theorists agree that:
  - a. development occurs at a smooth, constant rate throughout childhood and early adolescence; it begins to slow down in the high school years.
  - b. developmental milestones appear in a consistent sequence for most children.
  - c. physical development occurs in a predictable sequence, but cognitive development does not.
  - d. cognitive development occurs in a predictable sequence, but physical development does not.
- 2. Which one of the following statements best illustrates a *universal* in development as developmentalists define the term?
  - a. Piaget proposed that formal operational thought is characterized by an ability to think abstractly about a wide variety of topics.
  - b. Contemporary theorists have derived the concept of *cognitive apprenticeship* from Vygotsky's theory of development.
  - c. Young children show similar patterns in their language development regardless of the specific language that they learn.
  - d. Piaget neglected to consider the influence of prior knowledge and experience on children's ability to think logically.
- 3. Which one of the following statements reflects what developmentalists mean by the term *maturation*?
  - a. Developmental changes that are controlled largely by heredity
  - b. Changes related specifically to children's physical development
  - c. Changes related specifically to children's emotional development
  - d. Changes that reflect increasingly appropriate social behavior
- 4. Which of the following is *not* true regarding the role of the environment in Bronfenbrenner's theory?
  - a. There are several levels of environment and each level exerts a significant impact on children's development.
  - b. The broadest levels of the environment (such as states, provinces, or countries) exert the most influence on children's development.
  - c. A child's culture can influence all levels of the environment.
  - d. Children's environments are dynamic systems encompassing variables that not only influence each other but are in a state of constant flux or change.
- 5. Emily's mother is a doctor. According to bioecological systems theory, the hospital and the people she works with all have some influence on Emily's development and are part of Emily's:
  - a. exosystem.
  - b. mesosystem.
  - c. microsystem.
  - d. macrosystem.

- 6. Four-year-old Marc has two best friends — one from his preschool and one from his neighborhood. The two best friends don't know each other, but both have some influence on how Marc develops. According to bioecological systems theory, these two friends are part of Marc's:
  - a. microsystems.
  - b. macrosystem.
  - c. exosystem.
  - d. mesosystem.
  
- 7. A *sensitive period* in development can best be described as:
  - a. a stage of development in which children display unpredictable (and often inappropriate) emotional responses.
  - b. a period during children's cognitive development in which they are highly distractible and so are frequently off-task in the classroom.
  - c. an approach to teaching or parenting that takes a child's developmental level into account.
  - d. an age range during which environmental conditions are most likely to have an effect on a particular aspect of a child's development.
  
- 8. Which one of the following best describes how neurons transmit messages to one another?
  - a. By stimulating the flow of blood in nearby blood vessels
  - b. By attaching themselves to the same terminal buttons
  - c. By fusing the axon of one with a dendrite of another
  - d. By sending chemical substances across a tiny gap between them
  
- 9. Which one of the following best describes our current knowledge about the brain and learning?
  - a. We know that learning is often associated with the formation of new synapses.
  - b. We know that the brain reaches adult levels of maturity at puberty, enabling young adolescents to think and learn as effectively as adults do.
  - c. We know that "left-brained" individuals are, on average, more effective learners than "right-brained" individuals.
  - d. We know that the cortexes of rapid learners are about 20% larger than the cortexes of slow learners.
  
- 10. In the human brain, a great deal of *synaptic pruning* occurs in early childhood. This pruning appears to be:
  - a. the unfortunate result of home and school environments that provide only limited stimulation.
  - b. an adaptive process that allows children to deal more efficiently with typical tasks in their environment.
  - c. due to an imbalance of important nutrients, and especially to low levels of the B vitamins in many children's diets.
  - d. the result of the cortex's gradual takeover of responsibility for functions that have previously been controlled by other parts of the brain.

- 11. As children grow older, many of their neurons begin to transmit messages more rapidly than they did in the early years of life, thanks to:
  - a. increasing dominance of one brain hemisphere over the other.
  - b. synaptogenesis.
  - c. myelination.
  - d. greater variety of neurotransmitters.
  
- 12. It is because of brain plasticity that:
  - a. individuals can be either left- or right-handed.
  - b. individuals are often able to remember something they thought they had forgotten.
  - c. individuals are able to learn new things at many different ages and in many different circumstances.
  - d. individuals are able to develop mastery with little effort.
  
- 13. Which example below is *not* a good example to show brain plasticity?
  - a. Mary had a stroke and, as a result, was unable to use her right arm. Her doctor and physical therapist devised a plan in which Mary's left or "good" arm was put in a sling so that she would not be able to use it. Over time Mary slowly regained the ability to use her right arm.
  - b. A senior citizen decides that she would like to learn to play the piano. She starts with weekly lessons at a very beginning level and within a couple of years demonstrates quite a bit of skill with her musical instrument of choice.
  - c. DeWayne has been riding horses since he was a youngster growing up on a west Texas farm. Even though he took some nasty falls during his lifetime, he still rides quite well.
  - d. A baby learns that her mom always returns home after daily walks. For this reason, the baby no longer cries when her mother leaves the house each day to take a walk.
  
- 14. Which type of cells can best be thought of as having a variety of specific functions that help provide support for neurons as well as general brain functioning?
  - a. Glial
  - b. Stem
  - c. Basal
  - d. Myelin
  
- 15. Mr. Remick asks 9-year-old Anne to divide a pitcher of lemonade equally between two glasses, one each for her and her friend Kate. The two glasses are different shapes, with Anne's being tall and thin and Kate's being short and wide. After Anne pours the lemonade, Mr. Remick says to her, "Look, the lemonade in your glass is higher than the lemonade in Kate's glass. Did you give yourself more than you gave Kate?" "No," Anne replies, "my glass is skinnier." Mr. Remick continues to ask Anne questions to determine how well she understands that height compensates for width in this situation. Mr. Remick's strategy can best be described as illustrating:
  - a. equilibration.
  - b. class inclusion.
  - c. formal operations.
  - d. the clinical method.

- 16. Which one of the following reflects *class inclusion* as Piaget described it?
  - a. Getting cows and horses confused
  - b. Identifying a shape as a square one day but as a triangle the next
  - c. Realizing that things that are cars can also be vehicles
  - d. Understanding that some behaviors that are perfectly acceptable at home are unacceptable at school
  
- 17. Five-year-old Becky is playing with blocks, stacking them one on top of another until her towers eventually tumble, and then stacking them again. Which one of the following best reflects Piaget's view of how Becky is probably learning in this situation?
  - a. Because she is probably still in the sensorimotor stage, she will remember what she learns about the blocks only while the blocks are still in front of her.
  - b. She is absorbing information about how the environment behaves (e.g., "objects fall") without consciously thinking about it.
  - c. She is actively thinking about and interpreting the results of her actions.
  - d. Because she builds one tower after another, she is obviously reinforced by watching her towers tumble down.
  
- 18. Which one of the following statements best describes Piaget's view of how children acquire knowledge about the world?
  - a. Children are naturally disposed to think about their environment in particular ways; in a sense, some basic knowledge about the world is "pre-wired."
  - b. Children actively construct their own view of the world from their experiences with the environment.
  - c. Initially, children unconsciously develop a rather complex but confused view of the world; this view becomes simpler and more straightforward as time goes on.
  - d. Children repeatedly parrot their parents' and teachers' beliefs, eventually adopting these beliefs as their own knowledge.
  
- 19. In Piaget's theory, a *scheme* can best be described as:
  - a. a mental picture of oneself.
  - b. a lifestyle or family pattern.
  - c. an organized set of similar thoughts or actions.
  - d. a set of motor skills that children acquire during the preschool years.
  
- 20. Louis receives a new soccer ball and begins to dribble it in the same way he dribbles his basketball. His dribbling of the new ball reflects Piaget's concept of:
  - a. assimilation.
  - b. equilibration.
  - c. accommodation.
  - d. concrete operations.
  
- 21. Which one of the following is the best example of Piaget's concept of *assimilation*?
  - a. A kindergartner uses a white crayon instead of chalk to draw on the blackboard.
  - b. A third grader develops the necessary eye-hand coordination for writing letters.

- c. A sixth grader moves to a different school and changes styles to fit the fashions.
  - d. An eighth grader is discouraged from using the word *awesome* to describe everything he sees.
- 22. Which one of the following best illustrates Piaget's concept of *accommodation*?
    - a. After Amanda solves a set of 10 addition problems carelessly and incorrectly, she is given 10 more problems to solve.
    - b. Betsy writes down her definition of a *mollusk*—something she learned word-for-word from her textbook.
    - c. Carol copies what her teacher writes on the chalkboard.
    - d. Donna revises her understanding of what clouds are like when she studies them in science.
  - 23. Which one of the following teachers is *definitely* keeping in mind Piaget's idea that assimilation and accommodation are both necessary for learning and cognitive development to occur?
    - a. Mr. Ames presents brand new topics every day, expecting the continual novelty to keep students interested and motivated.
    - b. Mr. Baretta shows students how a new topic is similar to the things they already know, but also different in certain ways.
    - c. Ms. Chang makes sure that students have learned one topic very, very well before moving on to another topic.
    - d. Ms. Doherty uses a lot of drill-and-practice exercises, encouraging students to work faster every time.
  - 24. Which one of the following best describes Piaget's notion of *equilibration*?
    - a. A child assimilates without accommodating.
    - b. A child accommodates without assimilating.
    - c. A child doesn't encounter any new or challenging ideas.
    - d. A child revises existing schemes to incorporate new information.
  - 25. Piaget's view of cognitive development can best be described as:
    - a. a gradual and steady progression of intellectual capabilities.
    - b. changes in the brain that enable increasingly rapid learning.
    - c. an increasing number of stimulus-response connections over time.
    - d. discrete stages in which distinctly different forms of logical thought emerge.
  - 26. Mr. Johnson teaches a class of twenty 8-year-old third graders. His goal for the upcoming school year is to help at least 50% of his students reach formal operations. From the perspective of Piaget's theory, we would expect that Mr. Johnson's goal is:
    - a. an easy one to attain.
    - b. almost impossible to attain.
    - c. attainable only if he emphasizes abstract reasoning throughout the school year.
    - d. attainable only if his students have had enriching educational experiences throughout their early lives.

- 27. Piaget's sensorimotor stage is characterized by:
  - a. the beginnings of deductive logic.
  - b. inaccurate mental representations of the surrounding world.
  - c. schemes based primarily on perceptions and behaviors.
  - d. rudimentary schemes for dealing with abstract ideas.
- 28. Piaget spoke of *egocentrism* in both the thought and speech of the preoperational child. Three of the following are examples of preoperational egocentrism as Piaget defined it. Which one is *not*?
  - a. Justin is constantly grabbing objects and pulling them toward himself.
  - b. Kate cannot understand or answer the question, "How do you think Molly feels?"
  - c. Isabel cannot understand why she must share classroom equipment with others.
  - d. Lois tells a story as if her listeners already know many details they can't possibly know.
- 29. Roger is shown two piles of sand and says that each pile has the same amount. However, when one pile is flattened with a shovel, he now claims emphatically that the flattened pile has less sand. Based on this information, Roger is probably in which of Piaget's stages of development?
  - a. Concrete operations
  - b. Sensorimotor
  - c. Formal operations
  - d. Preoperational
- 30. Imagine you are a third-grade teacher. Considering Piaget's theory of cognitive development, you should expect most or all of your students to exhibit \_\_\_\_\_ thinking.
  - a. preoperational
  - b. formal operational
  - c. sensorimotor
  - d. concrete operational
- 31. Which one of the following is associated with Piaget's *concrete operations* stage?
  - a. Reasoning about hypothetical ideas
  - b. Awareness that other people's thoughts might differ from one's own
  - c. Separation and control of variables
  - d. An inability to classify objects as belonging to more than one category
- 32. Which one of the following would Piaget be *least* likely to advocate for elementary school children?
  - a. Discussions with classmates
  - b. Field trips to hands-on science museums
  - c. Laboratory-type experiences with concrete objects
  - d. Lectures that describe simple abstract scientific concepts

- 33. The following four junior high school science teachers are teaching the concept *molecule* to their students. In each classroom, some of the students have acquired formal operational reasoning abilities, whereas others think in a concrete operational manner. In which classroom are the *concrete operational* students most likely to have difficulty understanding?
  - a. Mr. Armani lets students touch and manipulate concrete models of various molecules.
  - b. Mr. Bendetti lets students look at the same concrete models that Mr. Armani has used.
  - c. Mr. Carmen verbally describes how different elements are made up of different numbers of neutrons, protons, and electrons.
  - d. Mr. Davidson has students role-play being neutrons, protons, and electrons. The “neutron” and “proton” students huddle together in the middle of the room, and the “electrons” move around them.
  
- 34. One thing that children in Piaget’s formal operations stage can do, but children in the concrete operations stage *cannot* do, is:
  - a. distinguish between their own feelings and those of others.
  - b. consider someone else’s perspective on an issue.
  - c. recognize that amount of liquid stays the same even when it’s poured into a differently shaped container.
  - d. reason logically about strictly hypothetical situations.
  
- 35. Considering Piaget’s theory of cognitive development, we would expect a student in the concrete operational stage to have the *greatest difficulty* with which one of the following questions?
  - a. An apple pie is cut into 4 pieces. A blueberry pie of the same size is cut into 12 pieces. How many pieces of blueberry pie do you need to have the same amount as 3 pieces of the apple pie?
  - b. In what way are an apple and a blueberry alike?
  - c. If we have one row of blueberries arranged like so: o o o o o o  
and another row of blueberries arranged like so: o o o o o o  
then does one row have more blueberries than the other?
  - d. If you have 8 Macintosh apples and 2 Jonathan apples, then do you have more Macintoshes or more apples?
  
- 36. Carl can correctly answer a question such as, “If all flegs are blats, and if all blats are dulms, are all flegs also dulms?” From Piaget’s perspective, Carl must be in which one of the following stages of cognitive development?
  - a. Preoperational
  - b. Formal operational
  - c. Sensorimotor
  - d. Concrete operational
  
- 37. Olivia understands why  $3/5$  and  $9/15$  are equivalent fractions. Based on this information, from Piaget’s perspective Olivia is probably in the \_\_\_\_\_ stage of development.
  - a. concrete operations



- b. preoperational
  - c. sensorimotor
  - d. formal operations
- 38. From Piaget's perspective, why might it be wise to postpone the teaching of complex fractions until middle school or high school?
  - a. Younger students don't know their math facts well enough.
  - b. Younger students cannot learn complex equations.
  - c. Younger students haven't acquired conservation.
  - d. Younger students haven't acquired proportional reasoning.
- 39. Which one of the following statements reflects a concern about the *separation and control of variables*?
  - a. "How do you think I should make amends with Martha? If I tell her I'm sorry, she might think I'm lying."
  - b. "I'm catching more tadpoles today, but I don't know if it's because I'm using a larger container to catch them or because I'm working in a different part of the frog pond."
  - c. "I have two tests to study for tonight—science and Spanish. I'll study one subject before dinner and the other one after dinner so I don't get them confused."
  - d. "I'm trying to learn how to do a lay-up shot. Can you show me all the things I should do, going one step at a time?"
- 40. Piaget claimed that an adolescent's overly optimistic idealism about how one might easily improve the world is due to \_\_\_\_\_ during the formal operations stage.
  - a. egocentrism
  - b. incomplete brain maturation
  - c. an incompletely developed ability to think abstractly
  - d. an inability to separate and control variables
- 41. James says, "If everyone would just agree to get along with everyone else, then we wouldn't have any more wars." From Piaget's perspective, James is probably in the \_\_\_\_\_ stage of development.
  - a. concrete operations
  - b. sensorimotor
  - c. formal operations
  - d. preoperational
- 42. Choose the statement below that most accurately reflects research findings concerning Piaget's theory of cognitive development.
  - a. The order in which various logical thinking capabilities emerge is consistent with the sequence that Piaget proposed.
  - b. Preoperational egocentrism continues to be common even in the upper elementary grades.
  - c. Concrete operational thinking abilities, such as conservation and class inclusion, develop later than Piaget believed.

- d. Formal operational thinking abilities, such as the ability to think and reason about abstract and hypothetical ideas, begin to emerge in the preschool years.
- 43. Which one of the following conclusions can be derived from research findings regarding Piaget's theory of cognitive development?
  - a. Middle school and secondary school students typically have an easier time thinking logically in the social sciences than they do in the physical and life sciences.
  - b. Students will think more logically about a topic when they have acquired relevant knowledge and experiences related to the topic.
  - c. Many students continue to show signs of preoperational thinking until well into the high school years.
  - d. Students have an easier time understanding fractions and proportions later on if such concepts are first introduced at the same time that division is introduced (e.g., in third grade).
- 44. Three of the following teaching practices are consistent with Piaget's theory of cognitive development. Which one is *not*?
  - a. When Sue leaves out important details as she tries to explain something, her teacher says, "I don't understand what you mean when you say. . . ."
  - b. A second-grade teacher encourages students to speculate about possible explanations as to why kites can fly and then to test each explanation systematically.
  - c. When a high school student claims that people should "Make love, not war," his teacher urges him to consider whether such an approach would have been advisable when the Nazi movement was gaining influence in Europe in the late 1930s and early 1940s.
  - d. When Martin says that two nickels are worth more than one dime because there are two of them and they're bigger, his teacher asks, "How can that be? Two nickels are worth ten cents; one dime is also worth ten cents."
- 45. Which one of the following statements best illustrates a *neo-Piagetian* approach to cognitive development?
  - a. Rather than involving general stages of increasingly advanced reasoning processes, children's cognitive development may involve discrete stages in particular content domains.
  - b. Children's progression through various stages of cognitive development is almost entirely the result of environmental experiences; brain maturation has little to do with their advancements in thinking.
  - c. Children's progression through various stages of cognitive development is almost entirely the result of brain maturation; environmental experiences have little to do with their advancements in thinking.
  - d. Children's acquisition of various cognitive abilities occurs in a gradual, trend like manner rather than in discrete stages.
- 46. Which one of the following best illustrates how *sociocognitive conflict* might promote cognitive development?

- a. Two children work together on a crossword puzzle that includes the week's new spelling words.
  - b. A teenage boy worries that his friends might think he's a nerd if he refuses a can of beer at a party.
  - c. The students in a cooperative learning group debate different ways of solving a difficult math problem.
  - d. Two students help each other prepare for a quiz by giving each other practice test questions.
- 47. Central to Vygotsky's theory of cognitive development is the idea that children increasingly make better sense of their world:
    - a. through the mental processes of assimilation and accommodation.
    - b. by repeatedly encountering both pleasant and unpleasant events in their daily lives.
    - c. through their independent explorations of their physical and social environments.
    - d. by interacting with more experienced people who mediate their understandings.
- 48. Eight-year-old Julie lives in a rural area where many people are farmers or in some other way make their living through agriculture. After a lengthy summer drought, it begins to rain heavily one day in late July. "Thank goodness!" Julie hears her father exclaim. "Our prayers have finally been answered!" Julie makes a mental note of the cause-and-effect relationship her father has implied. This situation illustrates Vygotsky's belief that:
    - a. adults pass along to children the ways in which their culture interprets events.
    - b. children's level of potential development is always a bit higher than their actual developmental level.
    - c. children acquire more knowledge and skills when scaffolding is kept to a minimum.
    - d. thought and language are distinct processes in the early years of life.
- 49. Which one of the following is the best example of a *cognitive tool*?
    - a. Use of natural lighting in a studio art class
    - b. A jigsaw in a woodworking class
    - c. Use of country-western music in a step-aerobics class
    - d. The concept of *pi* ( $\pi$ ) in a geometry class
- 50. Sociocultural theory suggests that with development, children acquire many *cognitive tools* of their culture. Which teacher is most clearly applying this idea?
    - a. Mr. Shaw reminds his students that he will let them go to lunch only after they've put away their art supplies.
    - b. Ms. Turiel shows students how to graph their research results so that they can more easily see trends in the data.
    - c. Ms. Norquist smiles to show her approval when students listen quietly and politely during a guest speaker's visit.
    - d. Mr. Cabot demonstrates how to use a paper cutter safely.

- 51. Vygotsky proposed that thought and language are:
  - a. closely connected at all stages of life.
  - b. largely independent before age two but closely connected thereafter.
  - c. closely connected early in life but become increasingly independent with age.
  - d. largely independent until the elementary school years and closely connected thereafter.
  
- 52. From Vygotsky’s perspective, what important role does *inner speech* play in children’s thinking and cognitive development?
  - a. By giving themselves directions about what to do next, children guide themselves through complex tasks.
  - b. By using words mentally as well as orally, children develop more abstract representations of the world.
  - c. By practicing various grammatical structures mentally, children acquire more complex language capabilities.
  - d. By talking to themselves about what they *should* have done or said in a particular situation, children remember the situation more vividly.
  
- 53. Kiley is having trouble learning the steps involved in using a microscope correctly. If we consider Vygotsky’s description of how children help themselves through difficult tasks, we should suggest that Kiley:
  - a. practice each step separately many times over.
  - b. go through the procedure a few times in slow motion.
  - c. talk herself through the steps.
  - d. learn the reasons why each step is important.
  
- 54. Which one of the following statements best describes Vygotsky’s concept of *internalization*?
  - a. As children grow older, they develop an increasing ability to think about events in abstract rather than concrete terms.
  - b. With age, children acquire more sophisticated problem-solving skills, largely because their parents and teachers give them increasingly challenging problems to solve.
  - c. Over time, children acquire greater self-confidence about their ability to deal with the world.
  - d. Through their social interactions with other people, children acquire ways of mentally approaching and thinking about a task.
  
- 55. Students in a fourth-grade reading group are reading a passage about snakes. Their teacher asks, “Who can think of a good title that summarizes what this passage is about?” After hearing several good suggestions, the teacher says, “The author says that snakes are helpful to farmers. What evidence does she give to support her statement?” If we consider Vygotsky’s concept of *internalization*, we might predict that such a discussion will:

- a. be more beneficial for students who are working outside their zones of proximal development than for students working inside their ZPDs.
  - b. help students develop a greater interest in learning for its own sake.
  - c. help students develop effective reading comprehension strategies (e.g., summarizing, looking for supporting statements).
  - d. be confusing and counterproductive for students who are not yet capable of abstract thought.
- 56. Vygotsky's concept of *zone of proximal development* refers to:
    - a. the range of tasks children can accomplish only with support.
    - b. children's ability to estimate how much they know.
    - c. the range of tasks children can perform by themselves.
    - d. the degree of maturation necessary to accomplish complex physical tasks.
  - 57. Which one of the following students is definitely working in his or her *zone of proximal development*?
    - a. Arnold uses correct grammar and punctuation when he writes short stories.
    - b. Berta is beginning to learn basic woodworking techniques. She has trouble hammering a nail straight into a piece of wood unless her teacher stands beside her, helping her and reminding her of what to do.
    - c. Calvin is playing the clarinet in the band. He finds that he can more easily keep the tempo if he taps the beat with his foot.
    - d. Doreen finds it virtually impossible to solve mathematical word problems, even when her teacher gives her helpful hints.
  - 58. Which one of the following statements most accurately describes Vygotsky's view of how cognitive development occurs?
    - a. Children's cognitive growth should be judged on the basis of their actual developmental level, not on the basis of their level of potential development.
    - b. Cognitive development progresses through four distinct stages; each stage is characterized by increasingly complex thought and language.
    - c. Children develop, in part, by working on challenging tasks with the assistance of more competent individuals.
    - d. Language and thought, although closely intertwined in the first few years of life, become increasingly distinct entities over time.
  - 59. Three of the following statements are consistent with Vygotsky's views about the kinds of diversity we are likely to see in students. Which statement is *not* consistent with Vygotsky's theory?
    - a. Children in any single age-group are apt to have different zones of proximal development.
    - b. Children from some cultures are more concerned about being punctual to appointments than children from certain other cultures are.
    - c. Some children frequently engage in self-talk, whereas other children don't use it at all.
    - d. Children from different cultures might interpret certain environmental events (e.g., a tornado or hurricane) in distinctly different ways.

- 60. As a high school music teacher plays a recording of Ferde Grofé’s symphony *Grand Canyon Suite* for his class, he asks his students to visualize scenes that Grofé tried to capture with music: a sunrise over the Grand Canyon, a burro ride down a winding trail, a thunderstorm, and so on. From a Vygotskian perspective, this lesson could best be described as:
  - a. guided participation.
  - b. a mediated learning experience.
  - c. a lesson at students’ actual developmental level.
  - d. a lesson at students’ level of potential development.
  
- 61. Which one of the following is the best example of a *mediated learning experience*?
  - a. Ms. O’Brien insists that students sit quietly at their desks before she dismisses them for lunch.
  - b. Mr. James reflects on the lesson he taught earlier in the day. “I suspect that most of my students still don’t understand the concepts I was trying to teach them,” he thinks.
  - c. Mr. Lucas asks his students to read Chapter 5 in their textbooks over the weekend. “You’ll find that the chapter is more challenging than previous ones,” he says.
  - d. As Ms. Robinson takes a group of children hiking, she gathers leaves from maple, oak, and elm trees and points out the ways in which the leaves from the trees are distinctly different.
  
- 62. From a Vygotskian perspective, *scaffolding* serves what purpose in instruction?
  - a. It gives students an idea of what they need to do to get good grades.
  - b. It keeps school tasks within students’ actual developmental levels.
  - c. It lets students learn by watching one another.
  - d. It supports students as they perform difficult tasks.
  
- 63. Three of the following teachers are using *scaffolding* to help their students learn. Which one is *not* necessarily providing scaffolding?
  - a. Ms. Applegate gives her students a structure to follow when they write their first essay.
  - b. Mr. Bernardo teaches students how to swing a softball bat effectively by gently guiding each student through the correct movement a few times.
  - c. Ms. Chen gives her class some hints about how to solve an especially difficult word problem.
  - d. Mr. Donaldson takes his students on a field trip to the local art museum.
  
- 64. Three of the following are definitely examples of *scaffolding*. Identify the situation in which *no* scaffolding is described.
  - a. Ms. Andrews likes to challenge her students by giving them group research projects. She puts her students in groups of three or four students each, and she gives each student a topic to research. She sends the groups to the school library to find out as much as they can about their topic, and then has each group give a report to the entire class.

- b. Mr. Bender is teaching a unit on beginning tennis. In the early stages of teaching a correct tennis swing, he uses an automatic ball server that serves balls with consistent speed, height, and direction. He also continually reminds students to “Keep your eye on the ball” and “Hold your arm straight.” Later in the unit he begins to serve the balls himself, varying the speed, height, and direction of the serves. And he begins to taper off his reminders about what to do.
  - c. Ms. Carrera helps students solve math word problems by providing visual illustrations of the elements of the problem and by showing them “models” (i.e., similar problems that have been worked out correctly). As the weeks go by, she provides fewer and fewer visual illustrations and fewer and fewer model problems, until eventually the students can solve the problems without either form of assistance.
  - d. Mr. Donaldson’s students are just beginning to learn how to take notes in class. For the first few weeks Mr. D. begins class by handing out a detailed outline about the topic for the day. By December he is handing out an outline covering only the main points of the day, encouraging students to fill in the blank spaces on the sheet with ideas relative to each point. By May students are writing down main points and relevant details on their own.
- 65. Several parents who are making costumes for an elementary school play ask the young cast members to assist them with such tasks as cutting fabric, pinning pieces together, and sewing simple hems. Using the language of Vygotskian theorists, we can say that the parents are:
    - a. presenting tasks that exceed the students’ zone of proximal development.
    - b. encouraging the separation of thought and language.
    - c. engaging the students in guided participation.
    - d. creating a cognitive apprenticeship.
  - 66. Which one of the following examples illustrates a *cognitive apprenticeship* in mathematics?
    - a. Mr. Ferguson gives students numerous word problems involving addition until they can solve such problems easily.
    - b. Mr. Johnson and a student work together to solve a challenging word problem, with Mr. Johnson modeling effective ways of thinking about the problem.
    - c. Ms. Lupinsky asks students to do easy word problems as a way of boosting their self-confidence for the more difficult problems that will soon follow.
    - d. Ms. Pang individualizes the word problems she gives each student, depending on each one’s present skill level.
  - 67. Which one of the following examples most clearly illustrates a *cognitive apprenticeship*?
    - a. A junior high school English class is reading Robert Frost’s “Stopping by Woods on a Snowy Evening.” At the end of each verse, the teacher describes the visual images and feelings that the poem elicits for him, and he encourages his students to do likewise.

- b. An elementary school teacher gives his students lots of practice doing addition, subtraction, multiplication, and division problems so that they will be able to solve word problems more effectively later in the school year.
  - c. In a high school chemistry lab, a teacher clearly describes the steps she expects her students to complete as they conduct the day's laboratory experiment. She also lists the things that students should do when they clean up after the experiment.
  - d. A middle school physical education teacher puts her students in pairs as they practice their forward and backward rolls. She asks the students in each pair to observe each other and give each other feedback about how to improve.
  
- 68. According to Vygotsky, when children adopt a cultural tool they may transform the idea, strategy, or object to better suit their own purposes. Vygotsky referred to this transformation process as:
  - a. appropriation.
  - b. a mediated learning experience.
  - c. adaptive incorporation.
  - d. pragmatic incorporation.
  
- 69. Chiara loves to draw with a pencil but decides, one day, to see if she can use her favorite pencil in a new way. She uses the tip of the pencil to make a series of holes in her sheet of white paper. She starts out by poking holes in a round circle, to make a face, and then proceeds to make eyes, a nose, a mouth, and ears for her face. Chiara's creative use of her favorite pencil is a good example of Vygotsky's concept of:
  - a. a mediated learning experience.
  - b. internalization.
  - c. appropriation.
  - d. adaptive incorporation.
  
- 70. Many theorists believe that people have an innate predisposition to learn language. Three of the following provide sources of evidence that these theorists use to support their belief. Which one is *not* used to support an inherited predisposition to learn language?
  - a. Young infants seem to prefer listening to human voices over other kinds of sounds.
  - b. Children acquire increasingly larger and more sophisticated vocabularies as they grow older.
  - c. Children tend to learn certain aspects of a language more easily when they are exposed to it at a young age.
  - d. Children tend to acquire many complexities of their first language that are unnecessary for day-to-day communication.
  
- 71. Given what we know about children's language development, which one of the following problems is typical for the grade level?
  - a. A first grader pronounces the word *rabbit* as "wabbit."
  - b. A fourth grader is unable to tell a simple story.
  - c. A seventh grader says, "The *sheeps* are in the meadow."



- d. An eleventh grader has trouble understanding common proverbs.
- 72. Three of the following aspects of language development typically appear during the elementary school years or even earlier. Which one are we *not* likely to see until students are in junior high or high school?
  - a. Some adherence to social conventions for beginning and ending conversations
  - b. Correct pronunciations of all sounds in one's native language
  - c. Playful use of words in jokes
  - d. Ability to detect subtle sarcasm
- 73. Which strategy is most likely to be effective in promoting students' vocabulary development?
  - a. Allowing students to make up their own meanings for words to encourage invention and creativity
  - b. Teaching students the meanings of words related to topics they are studying
  - c. Encouraging literal interpretations of such common sayings as "Look before you leap"
  - d. Allowing students to use words incorrectly in the early elementary grades in order to enhance their self-confidence about public speaking
- 74. If you were a high school English teacher who wanted your students to acquire knowledge of especially advanced syntactical sentence structures, your best course of action would be to:
  - a. specifically teach them these structures.
  - b. teach them a wide variety of little-used English vocabulary words.
  - c. teach them the basics of a language very different from English—perhaps Arabic or Chinese.
  - d. wait until these structures emerge naturally—something that is likely to happen simply as a result of brain maturation.
- 75. Most children in the early elementary grades think that being a "good listener" means:
  - a. asking the speaker a lot of questions.
  - b. remembering what the speaker says.
  - c. sitting quietly and looking at the speaker.
  - d. being able to tell somebody else what the speaker has said.
- 76. Which one of the following is the best example of *pragmatics* in language?
  - a. Julie waits until her friend has finished talking before she begins to speak.
  - b. Morris understands the underlying meaning of "A stitch in time saves nine."
  - c. Sheena knows that the plural of *man* is *men*, not *mans*.
  - d. Isaiah recognizes the double meanings in many of the puns he hears.
- 77. LaWanda understands that a single sentence can sometimes be interpreted in two or more ways. For example, she realizes that the sentence "I know more beautiful women than Miss America" has two possible interpretations: "I know women who are more beautiful than Miss America is" *or* "I know more beautiful women than

Miss America knows.” LaWanda’s appreciation for the double meanings of some sentences reflects:

- a. a sensitive period in language development.
  - b. metalinguistic awareness.
  - c. pragmatics.
  - d. figurative language.
- 78. Three of the following are common outcomes of learning two languages rather than only one in the early years of life. Which one is *not* necessarily an outcome of bilingualism?
    - a. Greater phonological awareness
    - b. Better ability to focus attention
    - c. Smaller-than-average vocabulary in each of the two languages
    - d. Ability to maintain good social relationships with different groups of people
  - 79. In North America, which approach appears to be most effective for teaching English speakers a second language?
    - a. Let them talk with native speakers of the language, who should alternate between using English and the other language.
    - b. Teach it to them before kindergarten if possible, because they quickly lose their ability to learn a second language fluently after that.
    - c. Immerse them in the second language, having them hear and speak it exclusively in all classroom activities.
    - d. Wait until they reach Piaget’s formal operations stage so that they can better grasp the subtleties of the new language.
  - 80. Which one of the following statements best captures the nature of *cognitive academic language proficiency* in describing English language learners?
    - a. An ability to learn as well as native English speakers in English-only classrooms
    - b. An ability to carry on conversations about day-to-day topics with teachers and peers
    - c. An ability to read and understand English texts that are written at a first-grade level
    - d. An ability to read and understand English texts that are written at a fifth-grade level
  - 81. Three of the following strategies should be effective in working with *English language learners*. Which one is *unlikely* to be effective?
    - a. Especially in the early years of English instruction, speak more slowly and clearly than you might otherwise.
    - b. Teach reading skills almost exclusively by using books written in English rather than in students’ native language.
    - c. When teaching academic subject matter, make a very gradual transition from students’ native language to English—perhaps a transition that takes 5 to 7 years to complete.

- d. When students work in small, cooperative groups, encourage them to use their native language if doing so helps them communicate with one another more effectively.
- 82. In which one of the following situations should we be most concerned about the possibility of *subtractive bilingualism*?
  - a. Ten-year-old Apsara’s father grew up in Canada, whereas her mother grew up in Thailand. The family now lives in the United States. At home Dad almost always speaks English, but Mom often speaks Thai.
  - b. Twelve-year-old Coshaun lives in an inner-city neighborhood where most of his peers speak a dialect of English very different from that used at school.
  - c. Eight-year-old Michelle has a specific language impairment that makes it difficult for her to understand other people’s speech.
  - d. After being adopted by American parents, 6-year-old Antoni moves from Poland to Chicago. His new parents don’t know Polish, and he now attends an English-speaking school.
- 83. Which one of the following statements characterizes both Piaget’s and Vygotsky’s theories of cognitive development, as well as psychologists’ beliefs about the nature of language development?
  - a. Development involves a series of stages.
  - b. Children are actively involved in their own learning.
  - c. Children and adults think in basically the same ways.
  - d. Development involves both assimilation and accommodation.
- 84. Which one of the following do Piaget and Vygotsky agree is essential for children’s cognitive development?
  - a. Good feelings about oneself
  - b. Mastery of the pragmatic aspects of language
  - c. An environment or situation that presents a cognitive challenge
  - d. An accepting environment in which children aren’t pressured to excel

### **Essay Questions**

- 85. Several teachers tell you that they are “teaching to students’ right brains” by spending a lot of time on painting, map interpretation, geometry, and other highly visual and/or spatial activities. Critique their claim using what you have learned about how the human brain functions.
- 86. Piaget presented his studies of conservation as evidence of the illogical thinking of young children.
  - a. What did he mean by the term *conservation*?
  - b. Describe one of his conservation tasks and the kinds of responses that children in the preoperational and concrete operational stages are likely to give.
  - c. Describe a specific way in which a child’s ability to conserve is essential for learning in either mathematics or science.

- 87. Mr. Davis asks his third graders to conduct experiments to examine the effects of water, sunlight, and type of soil on growing sunflowers. He tells them, “I want you to find out which of these three things—water, sunlight, and soil—affect how well sunflowers grow. Here are lots of sunflower seeds, lots of paper cups to grow them in, and two different types of soil. You can give your growing plants plenty of sunlight by putting them on the shelf by the window, or you can grow them in a shadier place on the bookshelf behind my desk. And here’s a measuring cup you can use to measure the amount of water you give them each day.”

Mr. Davis is assuming his third graders can do at least *two* things that, from Piaget’s perspective, they probably *cannot* do. What two crucial abilities necessary for conducting appropriate experiments do his students probably not yet have? Justify your answer in a short paragraph.

- 88. Choose a particular grade level and discuss three important implications of Piaget’s theory for teaching students at this grade level. State your three points both in abstract terms and in terms of specific educational practices you would employ.
- 89. Vygotsky and his followers have proposed that children’s and adolescents’ cognitive development is promoted when they work within their *zone of proximal development* and that *scaffolding* enables them to do this successfully.
  - a. Explain these two concepts, and give a concrete example of each one.
  - b. Choose a topic or skill that is apt to be in the zone of proximal development for most students at a particular grade level. Then explain how you would (1) scaffold students’ efforts and (2) modify the scaffolding over time.
- 90. Use concepts from Vygotsky’s theory of cognitive development to describe how *you* learned something in this class. Your response should include references to at least three of the following concepts: *cognitive tools*, *internalization*, *zone of proximal development*, and *scaffolding*.
- 91. In two separate paragraphs, explain how *challenge* is involved in (1) the process of *equilibration* and (2) the concept of *zone of proximal development*. Give a concrete example to illustrate each discussion.
- 92. Describe at least one limitation that elementary school students may have in each one of the following aspects of language, and illustrate each limitation with a concrete example:
  - a. Vocabulary
  - b. Syntax
  - c. Listening comprehension
  - d. Oral communication
- 93. Identify a learning objective or content standard in your ideal classroom placement (grade level and subject area). Describe how you would teach that objective using primarily a Piagetian approach. Then, describe how you would teach the objective using a Vygotskian approach. Compare these lessons—is one likely to be more effective than the other in terms of student learning? Why or why not?



## ANSWER KEY for Chapter 2

### Multiple-Choice Questions

- |       |       |       |       |       |
|-------|-------|-------|-------|-------|
| 1. b  | 21. a | 41. c | 61. d | 81. b |
| 2. c  | 22. d | 42. a | 62. d | 82. d |
| 3. a  | 23. b | 43. b | 63. d | 83. b |
| 4. b  | 24. d | 44. b | 64. a | 84. c |
| 5. a  | 25. d | 45. a | 65. c |       |
| 6. a  | 26. b | 46. c | 66. b |       |
| 7. d  | 27. c | 47. d | 67. a |       |
| 8. d  | 28. a | 48. a | 68. a |       |
| 9. a  | 29. d | 49. d | 69. c |       |
| 10. b | 30. d | 50. b | 70. b |       |
| 11. c | 31. b | 51. b | 71. a |       |
| 12. c | 32. d | 52. a | 72. d |       |
| 13. c | 33. c | 53. c | 73. b |       |
| 14. a | 34. d | 54. d | 74. a |       |
| 15. d | 35. a | 55. c | 75. c |       |
| 16. c | 36. b | 56. a | 76. a |       |
| 17. c | 37. d | 57. b | 77. b |       |
| 18. b | 38. d | 58. c | 78. b |       |
| 19. c | 39. b | 59. c | 79. c |       |
| 20. a | 40. a | 60. b | 80. a |       |

### Essay Questions

85. Although the two hemispheres tend to have different strengths (e.g., the left hemisphere specializes in language and logical thinking, the right hemisphere in visual and spatial tasks), they constantly collaborate in day-to-day tasks. Even very simple tasks (e.g., recognizing an object) recruit numerous areas of the cortex.
86. Answers to the separate parts of the question are as follows:
- Conservation is the recognition that if nothing is added or taken away, an amount stays the same regardless of alterations in shape or arrangement.
  - The student's response might describe conservation of liquid (e.g., the water-glasses task), conservation of number (e.g., the pennies task), conservation of weight (e.g., the balls-of-clay task), or any other conservation task with which the student is familiar. Responses of preoperational children reflect a lack of

conservation (e.g., “One has more”), whereas those of concrete operational children reflect an awareness that amounts are still the same.

- c. There are a number of possible responses to this question; following are two examples. (1) In mathematics, conservation of number is essential for an understanding of numbers; children must realize that “4 is 4 is 4,” no matter how the four items are arranged. (2) In science, students studying the concept of weight must understand that weight stays the same regardless of physical transformations; for example, gas expands when heated, but it still weighs the same as it did before.
87. Mr. Davis is assuming that his students can *formulate multiple hypotheses* about a particular situation and can *separate and control variables* to test those hypotheses. According to Piaget, these are abilities that emerge in formal operations. However, Mr. Davis’s students, being about eight or nine years old, are probably still in concrete operations.
  88. Students’ responses to this item are likely to vary considerably. A response should list three implications derived either from Piaget’s general assumptions or from characteristics of the stage in which the age group is likely to be in. Each implication should be described in both general, abstract terms, and as one or more specific, concrete teaching practices.
  89. Answers to the separate parts of the question are as follows:
    - a. The zone of proximal development is the range of tasks that a child can do only with the assistance of a more competent individual. Scaffolding is the structure that the more competent individual provides to help a child perform a difficult task successfully; this structure is gradually removed over time as the child becomes more skillful. The response should include a concrete example of each of these concepts.
    - b. Students’ responses will vary considerably depending on the grade level, topic, and specific form of scaffolding they choose. A response should identify a topic or skill that most students at the grade level identified would find challenging but not impossible. It should include both an appropriate form of scaffolding (see the bulleted list in the section “Scaffolding” for possibilities) and a description of how the scaffolding is gradually removed over time.
  90. Students’ responses are likely to vary considerably. However, they should include reference to at least three of the following ideas:
    - Cognitive tool: A concept, principle or other aspect of Vygotsky’s theory that enabled the respondent to think more effectively about some aspect of the course content.
    - Internalization: A socially-based process occurring in the class that the respondent gradually adopted as his or her own and became able to use independently.
    - Zone of proximal development: One or more tasks that the respondent could initially perform only with the support of the instructor, classmates, the textbook, or other external entity.
    - Scaffolding: Specific form of support that was gradually removed over time.

91. Piaget’s concept of *equilibration* refers to the idea that children often make cognitive advancements when they experience disequilibrium—that is, when they encounter puzzling situations they cannot adequately address using their existing understandings. Such challenges lead them to replace, reorganize, or better integrate their schemes (i.e., through accommodation) so that they *can* address these situations. In contrast, Vygotsky proposed that children are most likely to develop when they perform tasks within their *zone of proximal development*—challenging tasks for which they need the assistance of someone more skilled. (Students’ responses should include concrete examples that reasonably illustrate equilibration and the ZPD.)
92. Elementary school students may have limitations such as these (the response should include at least one bulleted item in each of the four areas below, with each item being illustrated with a concrete example):
- a. Vocabulary:
    - Limited number of words known and understood
    - Not completely accurate understanding of some words
  - b. Syntax:
    - Incomplete mastery of irregular forms (e.g., *goed* instead of *went*, *gooder* instead of *better*)
    - Limited understanding of complex syntactical structures (e.g., passive sentences, sentences with two or more clauses)
  - c. Listening comprehension:
    - Belief that good listening means sitting still and being quiet rather than understanding what is being said
    - Belief that it is inappropriate to ask for clarification when a message isn’t understood
    - Literal interpretations of messages
    - Limited ability to understand figurative language
  - d. Oral communication:
    - Pronunciation difficulties
    - Difficulty taking the knowledge of the listener into account
    - Limited pragmatic skills (i.e., limited knowledge about the social conventions of spoken language)
93. Answers will vary. Responses should include hands-on, exploratory/discovery, or inquiry-/project-based learning (Piaget) and modeling, “I do-we do-you do,” or guided instruction (Vygotsky).