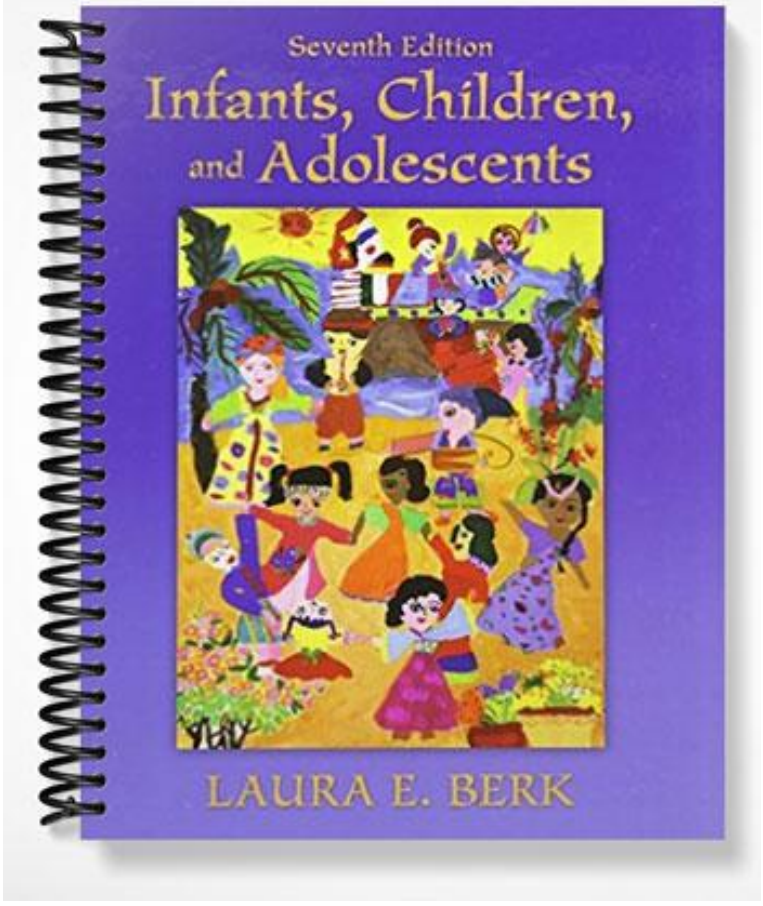
SOLUTIONS MANUAL



Instructor's Resource Manual

for

Berk

Infants, Children, and Adolescents

Seventh Edition

prepared by

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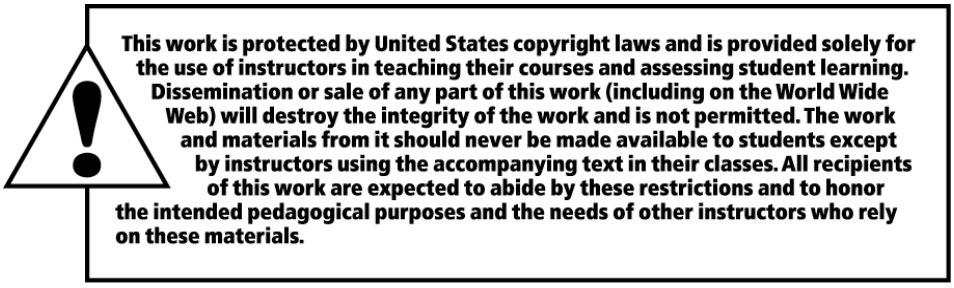

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CONTENTS

PREFACE

This *Instructor's Resource Manual*, which accompanies *Infants, Children, and Adolescents,* Seventh Edition, is designed to assist both the novice and the experienced teacher in preparing lectures and guiding students' learning. During the months that we wrote the manual, we tried to think of the kind of supports that might help instructors seasoned by years of experience bring freshness, stimulation, and inspiration to the teaching of child development. At the same time, we paid great attention to addressing the needs of beginning teachers—only a breath ahead of the syllabus in class preparation and scrambling to find good sources that amplify text discussion. The resources in this manual are intended to lighten the busy schedules of instructors; bring new insights and lively discussion to the classroom; and, most of all, deepen the understanding of students of child development.

The *Instructor's Resource Manual* consists of the following instructional resources keyed to each chapter of the text:

1. **Chapter-at-a-Glance.** Located at the beginning of each chapter, the Chapter-at-a-Glance tables provide easy reference to available resources in the manual as well as outside supplements. Main topics are page-referenced, and instruction ideas (Learning Objectives, Lecture Outlines, Lecture Enhancements, Learning Activities, and Ask Yourself questions) and the supplement (Test Bank) relevant to each text section are listed.

2. **Brief Chapter Summary.** This feature is designed to provide quick familiarity with the coverage of topics in each chapter. It can serve as the basis for deciding which subjects treated by the text to review and extend in class lecture and which supplementary topics to add that reflect the instructor's unique perspective, interests, and personal experiences.

3. **Learning Objectives.** For each text chapter, a comprehensive set of Learning Objectives is provided. We believe that students learn best when they actively grapple with text material and integrate new information with what they already know. Students can be asked to write a paragraph or two in response to each objective, include important terms in their responses, check their answers against the text's discussion, and revise each response accordingly. This exercise yields a student-generated summary of the content of each chapter. Once completed, it provides a useful review written in the student's own words that can be referred to while preparing for examinations. Further, the objectives are tied to individual items in the accompanying Test Bank.

4. **Lecture Outline.** The purpose of the Lecture Outlines is to provide a detailed synopsis of each chapter. Material is organized by text headings and subheadings and page-referenced to the text. Important terms and concepts appear in boldface and in italics, as in the text narrative. The outlines permit a "quick read" of each chapter and can serve as the basis for lecture notes or PowerPoint® Presentations.

5. **Lecture Enhancements.** Three to four Lecture Enhancements, page-referenced to relevant text material, accompany each chapter. Each expands on information treated in the text by addressing new theory and research, considering controversial issues that promote student discussion and debate, and extending the text's emphasis on the vital connections among theory, research, and applications. To assist instructors with the time-consuming task of lecture preparation, the Lecture Enhancements go beyond merely suggesting appropriate topics to providing the general direction of each lecture's content. Enough detail is given so that instructors who are pressed for time can integrate information from the manual directly into their lectures. Each Lecture Enhancement is accompanied by one or two current sources that can be used to develop a more extensive lecture presentation. Finally, for Lecture Enhancements calling for student participation, specific instructions have been boldfaced.

6. **Learning Activities.** From six to eleven Learning Activities per chapter are included. Many of the activities provide students with opportunities to see "live" examples of research findings by observing and interviewing children and adolescents. Also included are written assignments that permit students to extend their knowledge of topics in the text.

7. **Ask Yourself.** The Ask Yourself feature consists of critical-thinking questions, designed to support students' active engagement with the subject matter. Each question can be found at the end of major sections in the text and is page-referenced in this manual. The focus of these questions is divided between theory and application. Many describe problematic situations and ask students to resolve them in light of what they have learned. In this way, the questions inspire high-level thinking and new insights.

8. **Suggested Readings.** Many instructors wish to assign or recommend supplementary readings to their students. A list of two to four additional readings complements each text chapter. The readings have been carefully selected for their interest, value, and readability; the majority are recently published. Each entry is annotated so instructors can discern the topic and general orientation of the reading prior to consulting the original source.

9. **Media Materials.** A comprehensive, chapter-by-chapter listing of available films and DVDs is included in the manual. Other videotapes are categorized separately with the date of production, name of the distributor, length of the presentation, and a description of content.

10. **PowerPoint® Presentation.** The PowerPoint presentation contains illustrations and outlines of key topics for each chapter from the text, presented in a clear and visually attractive format.

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CHAPTER 1
HISTORY, THEORY, AND RESEARCH STRATEGIES

CHAPTER-AT-A-GLANCE

Chapter Outline	Instruction Ideas	Supplements
The Field of Child Development pp. 4–6 Domains of Development • Periods of Development	Learning Objectives 1.1–1.2	Test Bank Items 1–5, 143 Please contact your Pearson publisher's representative for a wide range of video offerings available to adopters.
Basic Issues pp. 7–11 Continuous or Discontinuous Development? • One Course of Development or Many? • Relative Influence of Nature and Nurture? • A Balanced Point of View	Learning Objective 1.3 Lecture Enhancements 1.1–1.2 Learning Activities 1.1–1.2 Ask Yourself p. 10	Test Bank Items 6–17, 144
Historical Foundations pp. 11–14 Medieval Times • The Reformation • Philosophies of the Enlightenment • Scientific Beginnings	Learning Objective 1.4 Ask Yourself p. 14	Test Bank Items 18–31
Mid-Twentieth-Century Theories pp. 14–21 The Psychoanalytic Perspective • Behaviorism and Social Learning Theory • Piaget's Cognitive-Developmental Theory	Learning Objective 1.5 Learning Activity 1.3 Ask Yourself p. 21	Test Bank Items 32–57
Recent Theoretical Perspectives pp. 21–29 Information Processing • Ethology and Evolutionary Developmental Psychology • Vygotsky's Sociocultural Theory • Ecological Systems Theory • New Directions: Development as a Dynamic System	Learning Objective 1.6 Learning Activity 1.4 Ask Yourself p. 29	Test Bank Items 58–82, 145–147
Comparing Child Development Theories pp. 29–30	Learning Objective 1.7 Learning Activities 1.2–1.3	Test Bank Items 83–85
Studying the Child pp. 30–46 Common Research Methods • General Research Designs • Designs for Studying Development • Ethics in Research on Children	Learning Objectives 1.8–1.11 Lecture Enhancements 1.3–1.4 Learning Activities 1.5–1.8 Ask Yourself pp. 35, 46	Test Bank Items 86–142, 148–152

BRIEF CHAPTER SUMMARY

Child development is an area of study devoted to understanding constancy and change, from conception through adolescence. It is part of a larger, interdisciplinary field, developmental science, which looks at all changes throughout the lifespan. Research on child development has been stimulated both by scientific curiosity and by social pressures to improve children's lives. Researchers often divide development into three broad domains—physical, cognitive, and emotional and social. However, these domains are not really distinct; rather, they combine in an integrated, holistic fashion. Further, researchers usually divide the first two decades of life into five age periods. In addition, researchers identify the transition from adolescence to adulthood as a distinct period: emerging adulthood.

Theories are orderly, integrated ideas, based on scientific verification, that guide and give meaning to our observations and give us a basis for practical action. This chapter provides an overview of philosophical and theoretical approaches to child study, from medieval to modern times. It also reviews major research strategies used to study child behavior and development.

All major theories of child development take a stand on three basic issues: (1) Is development a continuous process, or is it discontinuous, following a series of distinct stages? (2) Does one general course of development characterize all children, or are there many possible courses, influenced by the distinct contexts in which children grow up? (3) Are genetic or environmental factors (nature or nurture) more important in development, and are individual differences stable or characterized by substantial plasticity? Recent theories take a balanced stand on these issues. Contemporary researchers realize that answers may vary across domains of development and even, as research on resilience illustrates, across individuals.

Research methods commonly used to study children include systematic observation; self-reports; the clinical, or case study, method; and ethnography. Investigators of child development may use a correlational research design, which shows a relationship but does not allow inferences about cause and effect. They may also use an experimental design, which permits cause-and-effect inferences. To study how participants change over time, investigators use special developmental research strategies, including longitudinal, cross-sectional, sequential, and microgenetic designs. Each method and each design has both strengths and limitations.

Conducting research with children poses special ethical dilemmas. Guidelines have been developed that can be used to determine if the benefits of research outweigh the risks, and to ensure that children's rights are protected.

LEARNING OBJECTIVES

After reading this chapter, you should be able to:

1.1 Explain the importance of the terms *applied* and *interdisciplinary* as they help to define the field of child development. (p. 4)

1.2 List the age periods researchers use to study child development, and cite the three domains in which development is often divided. (pp. 5–6)

1.3 Explain the role of theories in understanding child development, describe the three basic issues on which major theories take a stand, and explain the concepts of *plasticity* and *stability* in development. (pp. 7–9)

1.4 Trace historical influences on modern theories of child development, from medieval times through the early twentieth century. (pp. 11–14)

1.5 Describe the theoretical perspectives that influenced child development research in the mid-twentieth century, and cite the contributions and limitations of each. (pp. 14–21)

1.6 Summarize six recent theoretical perspectives of child development, noting the contributions of major theorists. (pp. 21–29)

1.7 Identify the stand that each modern theory takes on the three basic issues of child development presented earlier in this chapter. (pp. 29–30)

1.8 Describe the methods commonly used to study children, and cite the strengths and limitations of each. (pp. 30–35)

1.9 Contrast correlational and experimental research designs, and cite the strengths and limitations of each. (pp. 35, 37–39)

1.10 Describe research designs used to study development, noting the strengths and limitations of each. (pp. 40–43)

1.11 Discuss children's research rights, explain why research involving children raises special ethical concerns, describe how the concept of informed consent applies to child participants, and discuss the use of deception in research with children. (pp. 43, 45–46)

LECTURE OUTLINE

I. THE FIELD OF CHILD DEVELOPMENT (pp. 4–6)
- A. **Child development** is an area of study devoted to understanding constancy and change from conception through adolescence.
- B. It is part of a larger discipline, **developmental science,** which includes all changes experienced throughout the lifespan.
- C. Domains of Development (p. 5)
  1. *Physical:* Includes changes in body size, functioning of body systems, and perceptual and motor capacities.
  2. *Cognitive:* Includes changes in intellectual abilities, including attention, memory, and language.
  3. *Emotional and social:* Includes changes in emotional communication, interpersonal skills, and moral reasoning and behavior.
  4. Each of these domains influences and is influenced by the others during a child's development.
- D. Periods of Development (p. 6)
  1. *The prenatal period: from conception to birth.* In this nine-month period, a one-celled organism is transformed into a human baby with remarkable capacities.
  2. *Infancy and toddlerhood: from birth to 2 years.* Dramatic changes in the body and brain support the emergence of a wide array of motor, perceptual, and intellectual capacities; the beginnings of language; and first intimate ties to others.
  3. *Early childhood: from 2 to 6 years.* Motor skills are refined, and children become more self-controlled and self-sufficient. Thought and language expand, and children establish ties with peers.
  4. *Middle childhood: from 6 to 11 years.* Children master new responsibilities. Development includes improved athletic abilities; more logical thought processes; and advances in understanding self, morality, and friendship.
  5. *Adolescence: from 11 to 18 years.* Puberty leads to an adult-sized body and sexual maturity. Thought becomes abstract and idealistic, and schooling is increasingly directed toward preparation for higher education and the world of work.
  6. *Emerging adulthood: from 18 to 25 years.* For many youth in industrialized nations, this is a period of intensified explorations of options in love, career, and personal values.

II. BASIC ISSUES (pp. 7–11)
- A. A **theory** is an orderly, integrated set of statements that describes, explains, and predicts behavior.
  1. Theories guide and give meaning to what we see, help us understand development, and put us in a better position to know how to improve the welfare of children.
  2. A theory's continued existence depends on *scientific verification.*
  3. All theories of child development take a stand on three basic issues:
     a. Is the course of development continuous or discontinuous?
     b Does one course of development characterize all children, or are there many possible courses?
     c. What are the roles of genetic and environmental factors—nature and nurture—in development?
- B. Continuous or Discontinuous Development? (pp. 7–8)
  1. If development is **continuous,** the difference in capacities and behavior between small infants, young children, adolescents, and adults is one of *amount or complexity*.
  2. If development is **discontinuous,** it takes place in **stages**—*qualitative* changes in thinking, feeling, and behaving that characterize specific periods of development; new ways of understanding and responding to the world emerge at specific times.
- C. One Course of Development or Many? (pp. 8–9)
  1. Stage theorists assume that people everywhere follow the same sequence of development.
  2. The field of child development is becoming increasingly aware that children grow up in distinct **contexts**—unique combinations of personal and environmental circumstances that can result in different paths of change.
- D. Relative Influence of Nature and Nurture? (p. 9)
  1. The **nature–nurture controversy** asks whether genetic or environmental factors are more important as underlying causes of development.
     a. *Nature* means inborn biological givens—the hereditary information we receive from our parents at the moment of conception.

b. *Nurture* means the complex forces of the physical and social world that influence our biological makeup and psychological experiences before and after birth.

2. All theories grant roles to both nature and nurture, but they vary in emphasis.
   a. Theorists who stress the importance of *heredity,* emphasize *stability*—that children who are high or low in a characteristic will remain so at later ages. These theorists generally believe that *early experiences* establish lifelong patterns of behavior that cannot be changed by later experiences.
   b. Other theorists see development as having substantial **plasticity** throughout life—as open to change in response to influential experiences.
   c. Investigators' views on the question of *stability versus plasticity* have great applied significance.

E. A Balanced Point of View (p. 9)
1. Today, some theorists believe that both continuous and discontinuous changes occur. A growing number regard heredity and environment as inseparably interwoven.
2. The relative impact of early and later experiences varies greatly from one domain of development to another and across individuals.
3. New evidence on **resilience**—the ability to adapt effectively in the face of threats to development—is receiving increasing attention as investigators look for ways to protect young people from the damaging effects of life stressors.

III. HISTORICAL FOUNDATIONS (pp. 11–14)

A. Contemporary theories of child development are the result of centuries of change in Western cultural values, philosophical thinking about children, and scientific progress.

B. Medieval Times (pp. 11–12)
1. In medieval Europe, childhood was already viewed as a separate period of life.
2. Religious writings sometimes depicted children as possessed by the devil, and at other times as angelic.

C. The Reformation (p. 12)
1. In the sixteenth century, the Puritans believed that children were born evil and stubborn and had to be civilized through harsh child-rearing practices.
2. The Puritans, who emigrated from England to the United States, believed that child rearing was one of their most important obligations. They gradually adopted a moderate balance between severity and permissiveness.

D. Philosophies of the Enlightenment (pp. 12–13)
1. The seventeenth-century Enlightenment brought more humane conceptions of childhood.
2. John Locke
   a. British philosopher John Locke viewed the child as a *tabula rasa,* or blank slate, whose character was shaped entirely by experience.
   b. Locke saw parents as rational tutors, molding the child through instruction, example, and rewards.
   c. He regarded development as *continuous* and championed *nurture*—the power of the environment to shape the child.
   d. However, Locke's view of children as passive, doing little to influence their own destiny, has been discarded.
3. Jean-Jacques Rousseau
   a. Eighteenth-century French philosopher Jean-Jacques Rousseau claimed that children were *noble savages,* naturally endowed with a sense of right and wrong and an innate plan for orderly, healthy growth.
   b. Rousseau believed that adult training could only harm children's built-in moral sense and unique ways of thinking and feeling.
   c. Rousseau introduced the concepts of *stage* and **maturation**—the idea that there is a genetically determined, naturally unfolding course of growth.
   d. Rousseau viewed development as a *discontinuous, stagewise* process.

E. Scientific Beginnings (pp. 13–14)
1. Darwin: Forefather of Scientific Child Study
   a. The *theory of evolution,* developed by British naturalist Charles Darwin, emphasized two related principles: *natural selection* and *survival of the fittest.*
   b. Darwin's emphasis on the adaptive value of physical characteristics and behavior eventually found its way into important developmental theories.
   c. Other scientists attempted to chart parallels between child development and human evolution; this effort, though unsuccessful, paved the way for scientific child study.

2. The Normative Period
    a. American psychologist G. Stanley Hall and his student Arnold Gesell devised theories based on evolutionary ideas. They regarded development as a genetically determined process that unfolds automatically.
    b. The theories of Hall and Gesell were one-sided, but their methods launched the **normative approach** to child study, in which age-related averages based on measures of many individuals are computed to represent typical development.
3. The Mental Testing Movement
    a. This movement emerged from the French psychologist Alfred Binet's attempts to develop an intelligence test to identify children with learning problems in the Paris school system.
    b. Binet's test captured the complexity of children's thinking by defining intelligence in terms of components that could be measured directly.
    c. Binet's results prompted research focused on comparing children's intelligence test scores to identify differences based on gender, ethnicity, and other characteristics.

IV. MID-TWENTIETH CENTURY THEORIES (pp. 14–21)

A. The Psychoanalytic Perspective (pp. 15–17)
1. The **psychoanalytic perspective** assumes that children move through a series of stages in which they confront conflicts between biological drives and social expectations. How they resolve these conflicts determines their psychological adjustment.
2. Freud's Theory
    a. Sigmund Freud's **psychosexual theory** emphasizes that healthy personality development is determined by how parents manage their child's early sexual and aggressive drives.
    b. In Freud's view, an individual's basic personality is determined by the relationships established among three parts of the personality—the *id,* the source of basic biological needs and desires; the *ego,* the conscious, rational part of personality; and the *superego,* or conscience.
    c. Freud's theory was the first to emphasize the influence of the early parent–child relationship, but it overemphasized the influence of sexual feelings; also, Freud did not study children directly.
3. Erikson's Theory
    a. Erik Erikson created his **psychosocial theory,** which emphasized the ego as a positive force in development. He added three adult stages to Freud's five stages.
    b. Erikson recognized that normal development must be understood in relation to the individual's cultural context.
4. Contributions and Limitations of Psychoanalytic Theory
    a. The psychoanalytic perspective emphasizes the value of studying the individual's unique life history by using the *clinical,* or *case study,* method.
    b. Despite its contributions, this approach is no longer in the mainstream of child development research, partly because it focuses too exclusively on the clinical approach.

B. Behaviorism and Social Learning Theory (pp. 17–19)
1. Traditional Behaviorism
    a. John Watson, who wanted to create an objective science of psychology, initiated the North American study of **behaviorism,** which maintains that directly observable events—stimuli and responses—are the appropriate focus of study.
    b. Watson investigated whether adults could use *classical conditioning* to mold children's behavior by controlling stimulus–response associations.
    c. B. F. Skinner's *operant conditioning theory* views behavior as altered by *reinforcers* and *punishment.*
2. Social Learning Theory
    a. Albert Bandura's **social learning theory** emphasizes the role of *modeling* (also known as *imitation* or *observational learning*) as a basis for development.
    b. Because Bandura's theory now stresses the importance of *cognition,* he refers to it as a *social-cognitive* approach.
    c. In Bandura's view, children gradually become more selective in what they imitate, and develop *personal standards* for behavior and a *sense of self-efficacy*—a belief that their own abilities and characteristics will help them succeed.

3. Contributions and Limitations of Behaviorism and Social Learning Theory
    a. Behaviorism and social learning theory have had a major impact on practices used with children, such as **behavior modification,** which combines conditioning and modeling to eliminate undesirable behaviors and increase socially desirable responses.
    b. Behaviorism and social learning theory have been criticized for taking too narrow a view of environmental influences.

C. Piaget's Cognitive-Developmental Theory (pp. 19–21)
1. In Jean Piaget's **cognitive-developmental theory,** development occurs in stages as children actively manipulate and explore their world.
2. Piaget's Stages
    a. Central to Piaget's theory is the biological concept of *adaptation,* whereby a child's mental structures develop to better fit with, or represent, the external world.
    b. During Piaget's *sensorimotor stage,* a baby uses the senses and movements to explore the world.
    c. In the *preoperational stage,* these action patterns evolve into symbolic but illogical thinking.
    d. School-age children, in the *concrete operational stage,* use more organized reasoning.
    e. In adolescents and adults, thought becomes an abstract, systematic reasoning system in the *formal operational stage.*
3. Contributions and Limitations of Piaget's Theory
    a. Piaget convinced the field that children are active learners.
    b. Piaget's stages stimulated a wealth of research on children's conceptions of themselves, other people, and relationships, and encouraged the development of educational approaches that emphasize discovery learning.
    c. Later research evidence indicates that Piaget underestimated the competencies of infants and preschoolers, and recent findings challenge the assumption that discovery learning is better than adult teaching in fostering development.
    d. Piaget's stagewise account pays too little attention to the effects of social and cultural influences.
    e. Today, many researchers accept a modified view of Piaget's stages, one in which changes in children's thinking occur more gradually than Piaget believed; however, others disagree with the stage sequence.

V. RECENT THEORETICAL PERSPECTIVES (pp. 21–29)

A. Information Processing (pp. 21–23)
1. **Information processing** is an approach that views the human mind as a symbol-manipulating system through which information flows.
2. Information is presented to the senses at *input,* then actively coded and transformed until it emerges as a behavioral response at *output.*
3. Concern with Rigor and Precision
    a. Information-processing researchers use flowcharts to map the precise steps used to solve problems and complete tasks.
    b. Information-processing models are guides for asking questions about broad age changes in children's thinking.
    c. Information processing regards children as active beings who modify their thinking in response to environmental demands. The approach views development as continuous.
    d. A great strength of the information-processing approach is its commitment to rigorous research methods, which has led to the development of effective teaching methods.
    e. One limitation of the approach is that it has been better at analyzing the components of thinking than at combining them into a comprehensive theory of development.
4. Developmental Cognitive Neuroscience
    a. **Developmental cognitive neuroscience,** an interdisciplinary area of investigation that has arisen in the past three decades, studies the relationship between brain changes and a child's cognitive processing and behavior patterns.
    b. Improved methods for analyzing brain activity allow neuroscientists to examine how specific experiences at various ages influence brain growth and organization, and also clarify the brain bases of many learning and behavior disorders.
    c. A revolutionary finding of neuroscience research is that the brain retains considerable plasticity throughout life.

B. Ethology and Evolutionary Developmental Psychology (pp. 23–24)
   1. **Ethology** studies the adaptive, or survival, value of behavior and its evolutionary history.
   2. Observations of *imprinting,* the early following behavior of some baby birds, led to the concept of the *critical period* —a limited time span during which the child is biologically prepared to acquire certain adaptive behaviors.
   3. In human development, the concept of a **sensitive period**—a time that is optimal for certain capacities to emerge—is more accurate than the strict notion of a critical period.
   4. British psychoanalyst John Bowlby applied ethological theory to understanding the human infant–caregiver relationship, suggesting that development of attachment in human babies is a lengthy process that leads the infant to form a deep affectionate tie with the caregiver.
   5. **Evolutionary developmental psychology** seeks to understand the adaptive value of species-wide cognitive, emotional, and social competencies as those competencies change with age.
   6. Evolutionary psychologists want to understand the entire *organism–environment system.*

C. Vygotsky's Sociocultural Theory (pp. 24–25)
   1. Today, much research is examining the relationship of *culturally specific beliefs and practices* to development.
   2. Lev Vygotsky's **sociocultural theory** focuses on how *culture* is transmitted from one generation to the next.
   3. Vygotsky believed that *social interaction* is essential for cognitive development, which he saw as a *socially mediated process,* in which children depend on assistance from adults and more expert peers as they tackle new challenges.
   4. A major finding of cross-cultural research is that cultures select different tasks for children to learn.
   5. Vygotsky's emphasis on culture and social experience led him to neglect biological contributions to development and deemphasize children's capacity to shape their own development.

D. Ecological Systems Theory (pp. 25–27)
   1. Urie Bronfenbrenner's **ecological systems theory** views the child as developing within a complex *system* of relationships affected by multiple levels of the environment.
   2. The **microsystem,** the innermost level of the environment, consists of activities and interaction patterns in the child's immediate environment.
   3. The **mesosystem,** the second level of Bronfenbrenner's model, encompasses connections between microsystems, such as home, school, and neighborhood.
   4. The **exosystem** consists of social settings, such community health and welfare services, that do not include children but affect their experiences in immediate settings.
   5. The **macrosystem,** the outermost level of Bronfenbrenner's model, consists of a culture's laws, values, customs, and resources.
   6. An Ever-Changing System
      a. In Bronfenbrenner's system, the environment is always in flux, as important life events produce new conditions affecting development.
      b. This temporal dimension, the **chronosystem,** includes both life changes that can be imposed on the child and changes that arise from within the child.

E. New Directions: Development as a Dynamic System (pp. 28–29)
   1. According to the **dynamic systems perspective,** the child's mind, body, and physical and social worlds form an *integrated system* that guides mastery of new skills.
   2. When change occurs in any part of the system, children actively reorganize their behaviors so that the various components of the system work together again, but in a more effective way.
   3. Dynamic systems theorists believe that within certain universal, broad outlines of development, wide individual differences exist in specific skills.
   4. The perspective has been applied largely to children's motor and cognitive skills, but some investigators have drawn on it to explain emotional and social development as well.

VI. COMPARING CHILD DEVELOPMENT THEORIES (pp. 29–30)

A. Theories of child development can be distinguished by the domain of development on which they focus and by their differing points of view about the development process.

B. No single theory provides a complete account of development. An *eclectic position,* or blend of several theories, can take into account what each of them has contributed to our knowledge of children.

VII. STUDYING THE CHILD (pp. 30–46)

A. Research usually begins with a *hypothesis,* a prediction drawn directly from a theory, followed by research conducted according to scientifically accepted procedures.

B. Researchers decide on a *research design*—an overall plan that will permit the best possible test of the investigator's hypothesis.

C. Learning about research strategies allows us to separate dependable information from misleading results, and those who work directly with children can conduct studies and make connections between research and practice.

D. Common Research Methods (pp. 31–35)

1. Systematic Observation
    a. **Naturalistic observation** involves going into the natural environment and observing the behavior of interest there.
        (1) An advantage is that the observed behavior reflects participants' everyday behaviors.
        (2) A disadvantage is that not all individuals have the same opportunity to display a particular behavior in everyday life.
    b. **Structured observations** involve setting up a laboratory situation that evokes the behavior of interest.
        (1) An advantage is that the investigator can control the research situation.
        (2) A disadvantage is that systematic observations tell us little about the reasoning behind people's behavior.
2. Self-Reports
    a. Self-reports ask research participants to provide information about their perceptions, abilities, feelings, and past experiences.
    b. A **clinical interview** uses a flexible, conversational style to probe for the participant's viewpoint.
        (1) Clinical interviews permit people to describe their thoughts in terms that are close to the way they think in everyday life. Clinical interviews also provide a large amount of information in a brief period.
        (2) A disadvantage is that participants might report their thoughts inaccurately in an attempt to please the interviewer.
    c. In a **structured interview,** each participant is asked the same questions in the same way.
        (1) This method is more efficient than the clinical interview and provides briefer answers.
        (2) This method does not yield the same depth of information as a clinical interview.
3. The Clinical, or Case Study, Method
    a. The **clinical,** or **case study, method** brings together a wide range of information about a single child.
        (1) The clinical method is well-suited to studying individuals who are few in number but vary widely in characteristics, such as *prodigies.*
        (2) One disadvantage is that investigators cannot assume that their conclusions apply to anyone other than the child studied.
4. Methods for Studying Culture
    a. To study the impact of culture on child development, researchers adjust the methods just considered or tap procedures specially designed for cross-cultural and multicultural research.
    b. **Ethnography** is a descriptive, qualitative technique for understanding a culture or distinct social group through the researcher's participation in the daily life of the community.
        (1) The ethnographic method assumes that through close contact with a social group, researchers can understand the beliefs and behaviors of its members more accurately.
        (2) Ethnographic findings cannot be generalized to groups other than those studied.

E. General Research Designs (pp. 35–39)

1. Correlational Design
    a. In a **correlational design,** researchers gather information on individuals, generally in natural life circumstances, making no effort to alter their experiences.
        (1) Correlational studies allow researchers to study conditions that may be impossible to arrange or control.
        (2) One major limitation is that finding a correlation does not allow researchers to infer a cause-and-effect relationship.
    b. The **correlation coefficient** is a number with a value between +1.00 and –1.00 that measures how two variables are associated with one another.
2. Experimental Design
    a. In an **experimental design,** researchers divide the events and behaviors of interest into two types.

(1) The **independent variable** is the one the investigator expects to cause changes in another variable.
(2) The **dependent variable** is the one the investigator expects to be influenced by the independent variable.

b. Experimental design permits inferences about cause-and-effect relationships because researchers use an evenhanded procedure to assign people to two or more treatment conditions.
(1) To control for participants' characteristics that might reduce the accuracy of their findings, researchers engage in **random assignment** of participants to treatment conditions.
(2) *Matching,* in which participants are measured before the experiment on the factor in question, is used with random assignment to ensure that the experimental groups are equivalent on factors that might distort the results.

3. Modified Experimental Designs: Field and Natural Experiments
a. In *field experiments,* researchers randomly assign participants to different treatments in natural settings.
b. In *natural,* or *quasi-, experiments,* investigators research preexisting treatments, choosing participant groups carefully to ensure that their characteristics are as much alike as possible.

F. Designs for Studying Development (pp. 40–43)
1. The Longitudinal Design
a. In a **longitudinal design,** participants are studied repeatedly at different ages.
b. Researchers can identify both common patterns of development and individual differences, and they can examine relationships between early and later events and behavior.
2. Problems in Conducting Longitudinal Research
a. Failing to enlist participants who adequately represent the population of interest, or *biased sampling,* is a common problem. Also, participant performance may improve not because of development but as a result of *practice effects.*
b. Cultural–historical changes can cause **cohort effects**—particular influences on one group that may make results inapplicable to other groups.
3. The Cross-Sectional Design
a. In a **cross-sectional design,** groups of people differing in age are studied at the same point in time.
b. Because participants are measured only once, the problems of participant dropout and practice effects are avoided.
4. Problems in Conducting Cross-Sectional Research
a. It does not provide evidence about individual change.
b. Cohort effects may occur.
5. Improving Developmental Designs
a. Sequential Designs
(1) In a **sequential design,** investigators conduct several similar cross-sectional or longitudinal studies at varying times.
(2) This design detects cohort effects, permits both longitudinal and cross-sectional comparisons, and is efficient.
b. Examining Microcosms of Development
(1) The **microgenetic design,** an adaptation of the longitudinal approach, captures the processes that produce change by presenting children with a novel task and following their mastery over a series of closely spaced sessions.
(2) Microgenetic studies are difficult to carry out, and they are subject to practice effects.
c. Combining Experimental and Developmental Designs
(1) Sometimes researchers can explore the causal link between experiences and development by experimentally manipulating the experiences.
(2) This type of combined approach is increasingly common.

G. Ethics in Research on Children (pp. 43–46)
1. Special ethical guidelines have been developed for research with children, who are more vulnerable than adults to physical and psychological harm, to ensure that the quest for scientific knowledge does not exploit them.
2. The ethical principle of *informed consent* requires special interpretation when participants are children.
3. All ethical guidelines advise that special precautions be taken in the use of deception and concealment.
4. *Debriefing,* providing a full account and justification of research activities, should take place with children, but does not always work well because their trust in adults may be undermined.

LECTURE ENHANCEMENTS

LECTURE ENHANCEMENT 1.1
Illustrating Domains of Development: The Relationship Between Cognitive and Emotional and Social Development (pp. 5, 8–9)

Time: 10–15 minutes

Objective: To illustrate domains of development by examining the relationship between reading problems and internalizing behavior in school-age children.

Chapter 1 of the text notes that each domain of development—physical, cognitive, and emotional and social—influences and is influenced by the others. To highlight the relationship between reading problems (cognitive domain) and internalizing behavior (emotional and social domain), Ackerman and colleagues (2007) recruited 105 school-age children who were already participating in a longitudinal study of low-income families. The researchers collected the following information when children were in grades 3 and 5:

(1) Teachers completed the Child Behavior Checklist (CBCL), which assesses withdrawn behavior, somatic complaints, anxiety, depression, aggression, and delinquency.
(2) Statewide reading achievement test scores, which were available on all participants, were used to assess reading levels and problems. The researchers also had access to participants' scores on a vocabulary subtest from the Stanford-Binet Intelligence Scale.
(3) Children completed a self-report about emotional experiences. For example, they were asked, "How often do you feel angry, disgusted, shy, sad, or guilty?"
(4) During academic tasks, trained coders conducted direct observations to assess inattention.
(5) Parents provided demographic information, including a family disruption index. (For example, had the mother experienced any change in intimate residential partners in the past two years? Had any adult member of the household had police contact or received psychiatric treatment in the past two years?)

Results indicated that of the 105 participants, 43 percent of third graders and 39 percent of fifth graders were enrolled in a reading-assistance program. Despite their involvement in the reading program, the majority of these children scored well below average on the statewide reading achievement test. Findings also showed that reading problems in the third and fifth grades strongly predicted internalizing behavior and negative emotion, although this finding was stronger for fifth graders. That is, fifth graders experienced more distress than third graders over poor reading achievement. The relationship between reading problems, internalizing behavior, and negative emotion remained even after controlling for family disruption. Taken together, these findings highlight the negative consequences of reading problems on the psychological well-being in school-age children. According to Ackerman and colleagues, the longer reading problems persist, the more frustrated, depressed, and anxious children are likely to become.

Ask students to identify factors that may explain the relationship between reading difficulties and anxiety and depression. How might internalizing problems, in turn, contribute to reading difficulties?

Ackerman, B. P., Izard, C. E., Kobak, R., Brown, E. D., & Smith, C. (2007). Relation between reading problems and internalizing behavior in school for preadolescent children from economically disadvantaged families. *Child Development, 78,* 581–596.

LECTURE ENHANCEMENT 1.2
Risk and Resilience in Low-SES Ethnically Diverse Families (pp. 10–11)

Time: 10–15 minutes

Objective: To extend existing research on risk and resilience in low-SES ethnically diverse families.

As noted in the text, environmental risks, such as poverty, negative family interactions, parental divorce, mental illness, and drug abuse, predispose children to future problems. However, not all at-risk children experience lasting problems. To extend existing research on risk and resilience, Wadsworth and Santiago (2008) recruited 94 families living at or below the federal poverty line. Each family had at least one parent or guardian and one child or adolescent between the ages of 6 and 18 years. Thirty-three percent of the families were European American, with the remaining families being African American, Latino, Native American, or multiracial.

The researchers collected the following information:

(1) The Multicultural Events Schedule for Adolescents (MESA) was used to measure family poverty-related stress. The MESA focuses on the daily hassles and life events that are common among poor, urban youths, including economic strain, family conflict, family transitions, discrimination, and victimization/violence exposure. Parents completed the MESA for children under the age of 10, whereas adolescents completed a self-report.
(2) The Economic Hardship Questionnaire (EHQ) was used to measure the number of constraints a family experienced in the past 6 months due to financial hardship. For example, in the past 6 months, we have had to sell possessions to make ends meet. We had to apply for federal assistance.
(3) Parents completed the Child Behavior Checklist (CBCL), which rates a broad range of internalizing (anxiety, somatic complaints, depression) and externalizing (aggression, impulsivity, hyperactivity) problems. Parents also completed the Adult Self Report (ASR) and the Adult Behavior Checklist (ABCL). The ASR measures one's own psychological symptoms, whereas the ABCL focuses on the partner's symptoms.
(4) Parents and adolescents completed the Responses to Stress Questionnaire, which assesses how a person responds to a stressful domain—for example, withdrawal, talking about the situation, or becoming anxious or depressed.

Results indicated that poverty-related stress (PRS) predicted psychological distress in families regardless of ethnic background. However, some individuals were more vulnerable to the effects of PRS. For example, children tended to exhibit greater behavioral difficulties and poorer coping skills than adolescents or adults. According to Wadsworth and Santiago, children may have an especially difficult time coping with PRS due to their lack of control over the family's financial situation. As a result, they may have difficulty developing effective coping strategies, which may interfere with their ability to deal with other stressful life events. And compared to males of all ages, females had higher rates of anxiety, depression, and somatic complaints, which is consistent with previous research on gender differences in stress reactions. Finally, African-American families were less affected by PRS than European American or Latino families. This may be due to the social supports available to African-American families, such as strong extended-family relations and religious participation. Such social support may serve as a buffer against PRS.

Wadsworth, M. E., & Santiago, C. D. (2008). Risk and resiliency processes in ethnically diverse families in poverty. *Journal of Family Psychology, 22,* 399–410.

LECTURE ENHANCEMENT 1.3
Illustrating Research Designs for Studying the Child: Marital Conflict, Conflict Resolution, and Children's Adjustment (pp. 31–33)

Time: 10–15 minutes

Objective: To examine the effects of marital conflict and conflict resolution on children's adjustment.

To examine the effects of marital conflict, including resolution of the conflict, on children's emotional adjustment, Goeke-Morey, Cummings, and Papp (2007) recruited 163 children between the ages of 8 and 16 years and their parents. The researchers collected the following information:

(1) For 15 consecutive days, mothers and fathers were instructed to complete separate diaries of naturally occurring marital conflict. The researchers defined marital conflict as "any major or minor interparental interaction that involved a difference of opinion, whether it was mostly negative or even mostly positive." For each entry, parents recorded how the conflict ended—for example, compromise, giving in, a spouse apologizing, agreeing to disagree, or withdrawal. Parents also recorded the degree of their own and their spouse's emotional reaction to each conflict—anger, sadness, fear, and positive emotional expression. If a target child was present during the conflict, parents recorded his or her emotional reaction as well. Because the entries for spouses were highly similar, the researchers only used the mothers' entries in the final data analyses.
(2) Target children participated in an analogue laboratory procedure. A researcher presented each child with one of two common conflict scenarios. Children were asked to visualize interparental conflict over a messy house or an expensive purchase. Specifically, they were told to imagine that their own parents had "a big fight" over the mess or purchase. Next, children were shown a video depicting two adults (who represented their own parents) ending the conflict through compromise, giving in, an apology, agreeing to disagree, or withdrawal. In some instances, the "mother" ended the conflict; in others, the "father" ended the conflict. Finally, the researcher asked each child a series of questions about the conflict scenario. For example, children were asked to answer the following questions by using a 10-point scale (1 = not at all; 10 = a whole lot): How much do you think the problem has

been worked out? How did that make you feel—happy, mad, scared, sad, or OK? Children were also asked an open-ended question: "What would you do if you were in the same room with them?" The researchers were interested in children's attempts to mediate or avoid the conflict.

(3) Parents completed the Child Behavior Checklist, which rates a broad range of internalizing (anxiety, somatic complaints, depression) and externalizing (aggression, impulsivity, hyperactivity) problems.

Results indicated that parental conflict resolution is a particularly important predictor of children's psychological adjustment, perhaps more so than exposure to the initial conflict. According to the diary entries, of all possible outcomes, compromise was the most frequent end to conflict and had the greatest impact on children's reactions. Specifically, children who experienced parental compromise had fewer negative reactions like sadness and fear and rated the laboratory scenarios more positively. In contrast, withdrawing from marital conflict was associated with increased child distress. Children who frequently observed parental withdrawal were less positive and rated the laboratory scenarios more negatively. According to Goeke-Morey and Cummings, this finding suggests that marital conflict is not a uniformly negative experience for children. In fact, marital conflicts can actually end in ways that are positive and constructive to the child. Such conflicts may also serve as a model for children's own conflict resolution strategies.

Ask students to consider the various research designs for studying development. What design was utilized in this study? What are the strengths and limitations of this design? Can students think of any special ethical considerations that might arise with this type of study? Explain.

Goeke-Morey, M. C., Cummings, E. M., & Papp, L. M. (2007). Children and marital conflict resolution: Implications for emotional security and adjustment. *Journal of Family Psychology, 21,* 744–753.

LECTURE ENHANCEMENT 1.4
The Effects of Trauma on Children: Terrorist Attacks of September 11, 2001 (pp. 33, 40)

Time: 5–10 minutes

Objective: To examine the long-term effects of trauma on children.

To examine the long-term effects of trauma on children, Mullett-Hume and colleagues (2008) recruited 204 adolescents between the ages of 12 and 16 years. The participants attended schools near "Ground Zero"—that is, within 10 blocks—of the World Trade Center attack on September 11, 2001. The participants completed the following surveys:

(1) *The New York University Child and Adolescent Stressors Checklist-Revised (NYU-CASC).* The NYU-CASC focuses on various types of trauma and life adversities. Participants were asked about exposure to domestic violence, community and school violence, significant illnesses or death of close family members, accidents or injuries to self, natural disasters, and war. The researchers were interested in the types of trauma that participants had experienced, as well as cumulative trauma.

(2) *The Child PTSD Symptom Scale (CPSS).* The CPSS assesses reactions to trauma. For example, participants were asked to answer the following questions by using a 4-point scale (0 = not at all; 3 = 5 or more times a week/almost always): How often do you feel upset, scared, or angry when you think about or hear about the event? How often do you avoid activities, people, or places that remind you of the event?

Results indicated that history of trauma exposure—rather than direct exposure to the 9/11 terrorist attack—predicted severity of stress reactions. Specifically, children who were exposed to the terrorist attack but had little or no history of other life traumas continued to experience stress symptoms 2.5 years after exposure. However, stress reactions associated with 9/11 were significantly greater for children who had experienced other traumatic events prior to the terrorist attack. According to Mullett-Hume and colleagues, these findings suggest that a history of multiple traumas may be a more potent risk factor for long-term adjustment difficulties than exposure to a single, severe traumatic event.

Have students review research on cohort effects. How might cohort effects explain why specific experiences, such as exposure to 9/11, influence some children but not others in the same generation?

Mullett-Hume, E., Anshel, D., Guevara, V., & Cloitre, M. (2008). Cumulative trauma and posttraumatic stress disorder among children exposed to the 9/11 World Trade Center attack. *American Journal of Orthopsychiatry, 78,* 103–108.

LEARNING ACTIVITIES

LEARNING ACTIVITY 1.1
What Is Your Stance on the Three Basic Issues of Human Development? (pp. 7–9)

To help students better understand the three basic issues of human development, present this exercise as an in-class assignment. The exercise will help students express their own viewpoints on some of the controversies in the field of human development.

Directions: The following four pairs of statements relate to basic issues about human development. Read each statement carefully. Then circle the statement in each pair that more closely reflects your own view.

1. A. Development is a continuous, gradual progression, with new abilities, skills, and knowledge gradually added at a relatively uniform pace.
   B. Development occurs at different rates, alternating between periods of little change and periods of abrupt, rapid change.
2. A. All humans follow the same general sequence of development.
   B. Each individual has a unique course of development.
3. A. Children respond to the world in much the same way as adults. The main difference is that children's thinking is less sophisticated and complex than adults'.
   B. Children have unique ways of thinking about and responding to the world that are very different from those of adults.
4. A. An individual's personality is mostly determined by heredity.
   B. An individual's personality can be modified through caregiving experiences.

Next, have students break into small groups and discuss their answers. What is their stance on the three basic issues of human development? Which theories take a stance similar to their own? If students had to choose a theory that best represents their own view of development, would they choose a single theory or would they select certain components of several theories? What aspects of their chosen theory (or theories) make it more attractive than the others?

LEARNING ACTIVITY 1.2
Interviewing a Resilient Adult (pp. 10–11)

Ask students to identify an adult they know well, such as a family member or close family friend, who experienced and overcame significant adversity as a child or adolescent. For example, the individual may have experienced the death of a parent or sibling, experienced community or school violence, had a mentally ill parent, become a teenage parent, been poor for a number of years, or been removed from the family home for some reason. If the adult is comfortable discussing the situation, have students conduct an interview with him or her. The following questions might be useful to students: Briefly describe your childhood/adolescent experience. How did you respond to the event? What factors helped you overcome the event?

Following the interview, students should compare the answers with research in the text. What factors likely contributed to the individual's resilience? For example, did he or she mention personal characteristics, a warm parental relationship, social support outside the family, or community resources? Explain, using examples from the interview.

LEARNING ACTIVITY 1.3
Keeping a Theory/Research Notebook (pp. 14–30)

Given the many developmental theories that exist, students are likely to find some more appealing and plausible than others. Encourage students to construct a systematic list of their theoretical likes and dislikes by keeping a theory/research notebook. For each theory, students should list the concepts and principles they find important and those they believe to be inadequate or incorrect. As they learn more throughout the course, they can revise their opinions, noting research that supports their changing views. At the end of the course, students should have developed a personal perspective on human development, which may emphasize one theory or blend aspects of several or many theories.

LEARNING ACTIVITY 1.4
Applying Ecological Systems Theory to a "Hot Topic" in Child Development (pp. 25–27)

Have students form small groups and select a "hot topic" in child development, such as the effects of divorce, child abuse and neglect, quality of child care, the obesity epidemic, public policies for children, or sex education programs in the schools. Once students have selected their topic, ask them to consider how each level of the environment may affect development, including bidirectional influences and the role of third parties.

LEARNING ACTIVITY 1.5
Thinking About Research Methods and Designs (pp. 30–43)

Pose the following questions to students for an in-class discussion:

(1) An investigator is interested in determining whether infant child care leads to an insecure attachment bond between children and their mothers during the first year of life as well as into the preschool years. What research method and design would you use for this study, and why? Would there be any special ethical considerations with this type of study? If so, what are they?
(2) An investigator is interested in determining whether sociability in children is related to school achievement and whether this relationship varies for children in preschool, grade school, and middle school. What research method and design would you use for this study, and why? Would there be any special ethical considerations with this type of study? If so, what are they?

LEARNING ACTIVITY 1.6
Critiquing Journal Articles (pp. 30–43)

Have students select and read two articles about child development published during the past four years. Each article should present an empirical study on a topic related to child development. Some journals to consider for this activity are *American Psychologist, Child Development, Developmental Psychology, Early Childhood Research Quarterly, Journal of Adolescence, Journal of Applied Developmental Psychology,* and *Developmental Science.*

Next, have students (1) prepare a brief summary of the problem, method, results, discussion, and conclusions of the two articles; (2) indicate the type of research method(s) and design(s) used; and (3) identify any potential problems for achieving accurate results posed by the research design(s). Students can then discuss their findings in small groups or as a class.

LEARNING ACTIVITY 1.7
Cross-Sectional, Longitudinal, and Sequential Research Designs (pp. 40–43)

Present the following exercise as an in-class activity or quiz.

Directions: The following list contains descriptions, challenges, and examples of cross-sectional, longitudinal, and sequential research designs. For each statement, determine which research design is being described.

1. The researcher studies groups of participants who differ in age at the same point in time.
2. The researcher is interested in whether frequent exposure to violent television in early childhood predicts aggressive and antisocial behavior in adulthood.
3. May have the same problems as longitudinal and cross-sectional strategies, but the design itself helps identify difficulties.
4. Age-related changes may be distorted because of biased sampling, participant dropout, practice effects, or cohort effects. Theoretical and methodological changes in the field can make findings obsolete.
5. The researcher follows a sequence of samples (two or more age groups), collecting data on them at the same points in time.
6. Does not permit the study of individual developmental trends. Age differences may be distorted because of cohort effects.
7. The researcher is interested in age-related changes in children's problem-solving skills. The researcher selects three samples—preschool-age children, school-age children, and adolescents—and tracks them for five years.
8. The researcher is interested in how children of different ages process traumatic events, such as terrorism or natural disasters. The researcher recruits children in grades 3, 6, 9, and 12 for the study and interviews them about the London terrorist attacks, the Asian tsunami, and Hurricane Katrina.
9. The researcher studies the same group of participants repeatedly at different ages.

Answers:

1. Cross-sectional
2. Longitudinal
3. Sequential
4. Longitudinal
5. Sequential
6. Cross-sectional
7. Sequential
8. Cross-sectional
9. Longitudinal

LEARNING ACTIVITY 1.8
Exploring Ethical Guidelines for Research with Children (pp. 43–46)

To supplement the text coverage of ethics in child research, have students visit the following website: *www.srcd.org.* On SRCD's homepage, have students choose "SRCD Ethical Standards" under the "About SRCD" heading. As students review the website, have them compare ethical guidelines for children with those presented in the text. What are some special ethical considerations for research with children? Do the ethical guidelines presented on the website adequately protect child research participants from undue risk? Explain.

ASK YOURSELF . . .

REVIEW: What is meant by a *stage* of development? Provide your own example of stagewise change. What stand do stage theorists take on the issue of continuous versus discontinuous development? (pp. 7–8)

A *stage* is a distinct period of development characterized by qualitative changes in thinking, feeling, and behaving. Stage theorists believe that development is *discontinuous*— a process in which new ways of understanding and responding to the world emerge at specific times. Children undergo periods of rapid transformation as they step up from one stage to the next, alternating with plateaus during which little change occurs. For example, as young children begin to represent their world through language and make-believe play, they are entering a new stage of development.

APPLY: Anna, a high school counselor, has devised a program that integrates classroom learning with vocational training to help adolescents at risk for school dropout stay in school and transition smoothly to work life. What is Anna's position on *stability versus plasticity* in development? Explain. (p. 9)

Anna's program reflects a belief in the possibility of *plasticity* in development—the view that change is possible and even likely if it is supported by new experiences. First, Anna takes the position that environmental influences, not just heredity, are important. Second, by devising a program for adolescents, she rejects the view that children's early experiences establish lifelong patterns of behavior that cannot be fully overcome by later, more positive experiences. Anna, taking a more optimistic view, believes that high school students who are at risk for dropout will benefit from the program she has developed, because it will provide positive experiences that will enable them to overcome the effects of the negative events of their first few years.

CONNECT: Provide an example of how one domain of development (physical, cognitive, or emotional/social) can affect development in another domain. (p. 5)

Development is often divided into three broad domains: *physical, cognitive,* and *emotional and social.* Each domain influences and is influenced by the others. For example, new motor capacities, such as reaching, sitting, crawling, and walking (physical), contribute greatly to infants' understanding of their surroundings (cognitive). When babies think and act more competently, adults stimulate them more with games, language, and expressions of delight at their new achievements (emotional and social). These enriched experiences, in turn, promote all aspects of development.

REFLECT: Cite an aspect of your development that differs from a parent's or grandparent's when he or she was your age. How might contexts explain this difference? (pp. 8–9)

This is an open-ended question with no right or wrong answer.

REVIEW: Imagine a debate between John Locke and Jean-Jacques Rousseau on the nature–nurture controversy. Summarize the argument that each historical figure is likely to present. (pp. 12–13)

JOHN LOCKE: The child begins as a *tabula rasa,* or blank slate, neither good nor evil, whose character will be shaped entirely by experience. Parents act as rational tutors who can mold the child as they wish through careful instruction, effective example, and rewards (such as praise) for good behavior. In sum, the environment is the primary determinant of growth.

JEAN-JACQUES ROUSSEAU: Children are not blank slates, passively responding to environmental influences. Rather, they are "noble savages," born with a built-in sense of right and wrong and an innate plan for orderly, healthy growth. Environmental intervention has no value; it can only harm or delay a child's genetically determined, naturally unfolding course of growth. In sum, nature is the primary determinant of growth.

CONNECT: What do the ideas of Rousseau, Darwin, and Hall have in common? (p. 13)

Rousseau, Darwin, and Hall all emphasized the importance of nature over nurture in development. Rousseau believed that children develop according to a genetically determined, naturally unfolding course of growth. Darwin's theory emphasized the adaptive value of innate characteristics, which determine whether individuals will meet the survival requirements of their environment and, as a result, live long enough to reproduce and pass on their beneficial characteristics to future generations. Hall, inspired by Darwin's work, saw development as a genetically determined process that unfolds automatically.

REFLECT: Find out whether your parents read any child-rearing advice books when you were growing up. What questions most concerned them? Do you think the concerns of today's parents differ from those of your parents' generation? Explain. (pp. 4, 14)

This is an open-ended question with no right or wrong answer.

REVIEW: What aspect of behaviorism made it attractive to critics of psychoanalytic theory? How did Piaget's theory respond to a major limitation of behaviorism? (pp. 17–21)

The early behaviorists rejected the psychoanalytic concern with the unseen workings of the mind. They sought, instead, to create an objective science of psychology that would study directly observable events—stimuli and responses. As psychologists wondered whether behaviorism might offer a more direct and effective explanation of the development of children's social behavior than the less precise concepts of psychoanalytic theory, several kinds of social learning theory emerged. The most influential emphasized *modeling,* also known as *imitation* or *observational learning,* as a powerful source of development.

Two important themes of behaviorism, modeling and reinforcement, were criticized for offering too narrow a view of important environmental influences and also for underestimating children's contributions to their own development. Piaget maintained that children's learning does not depend on reinforcement or rewards. Rather, children actively construct knowledge as they manipulate and explore their world.

Besides investigating children's understanding of their physical environment, Piaget explored their reasoning about the social world. His cognitive-developmental perspective convinced the field that children are active learners whose minds consist of rich structures of knowledge.

APPLY: A 4-year-old becomes frightened of the dark and refuses to go to sleep at night. How would a psychoanalyst and a behaviorist differ in their views of how this problem developed? (pp. 15–18)

According to the psychoanalytic approach, children move through a series of stages in which they confront conflicts between biological drives and social expectations. In this view, fear of the dark reflects an unconscious motive or deep-seated anxiety within the child. A psychoanalyst might conclude, for example, that the child's fear really represents anxiety about nighttime separation from the parent. Once the anxiety is resolved, the fear will subside.

In contrast, behaviorists look at the effects on behavior of directly observable events, not at the inner workings of the mind. From a behaviorist perspective, a child would be afraid of the dark as a result of previous negative experiences in the dark. Perhaps the child heard a sudden, loud noise at night or was frightened by the visual images of a nightmare. On the basis of these experiences, the child would be conditioned to respond fearfully to being in the dark.

CONNECT: Although social learning theory focuses on social development and Piaget's theory on cognitive development, each has enhanced our understanding of other domains. Mention an additional domain addressed by each theory. (pp. 17–20)

Social learning theory emphasizes modeling, also known as *imitation* or *observational learning,* as a source of development. From its original emphasis on the emotional/social domain, the theory has evolved to stress the importance of cognition, or thinking. As a result, it is now known as a *social-cognitive* rather than a social learning approach. In addition to explaining children's social development, social-cognitive theory provides insight into how children control their own development in the cognitive domain through the attitudes, values, and convictions they acquire about themselves.

Piaget's theory, best known for its emphasis on the stages of cognitive development, also explores how children reason about the social world. It has sparked a great deal of research on children's conceptions of themselves, other people, and human relationships—all aspects of the social/emotional domain.

REVIEW: Explain how each recent theoretical perspective regards children as active contributors to their own development. (pp. 21–29)

INFORMATION PROCESSING: Like Piaget's cognitive-developmental theory, the information processing approach regards children as active, sense-making beings who modify their thinking in response to environmental demands. In this view, the human mind is a symbol-manipulating system through which information flows. From the time it is presented to the senses at input until it emerges as a behavioral response at output, information is actively coded, transformed, and organized. When presented with a task, children perform a set of mental operations and experiment with various strategies in their attempts to solve the problem.

ETHOLOGY AND EVOLUTIONARY DEVELOPMENTAL PSYCHOLOGY: Both ethologists and evolutionary developmental psychologists are interested in the evolutionary history of behavior and its adaptive, or survival, value. For instance, newborns come into the world equipped with certain behaviors, such as smiling, babbling, grasping, and crying, that are built-in social signals, encouraging the caregiver to approach, care for, and interact with the baby. By keeping the parent near, these behaviors help ensure that the baby will be fed, protected from danger, and provided with stimulation and affection necessary for healthy growth.

VYGOTSKY'S SOCIOCULTURAL THEORY: Vygotsky's theory focuses on how *culture*—the values, beliefs, customs, and skills of a social group—is transmitted to the next generation. According to Vygotsky, *social interaction,* particularly cooperative dialogues with more knowledgeable members of society, is necessary for children to acquire the ways of thinking and behaving that make up a community's culture. Like Piaget, Vygotsky saw children as active, constructive beings. But whereas Piaget emphasized children's independent efforts to make sense of their world, Vygotsky viewed cognitive development as a *socially mediated process,* in which children depend on assistance from adults and more expert peers as they tackle new challenges.

ECOLOGICAL SYSTEMS THEORY: Ecological systems theory views the child as developing within a complex system of relationships affected by multiple levels of the surrounding environment. The child's biologically influenced dispositions join with environmental forces to mold development. Life changes can be imposed on the child, or they can arise from within the child, because as children get older they select, modify, and create many of their own settings and experiences. How they do so depends on their physical, intellectual, and personality characteristics and their environmental opportunities. In ecological systems theory, children and their environments form a network of interdependent effects that, together, determine the course of development.

DYNAMIC SYSTEMS PERSPECTIVE: Much like ecological systems theory, the dynamic systems perspective maintains that the child's mind, body, and physical and social worlds form an *integrated system* that guides mastery of new skills. The system is *dynamic,* or constantly in motion. A change in any part of it—from brain growth to physical and social surroundings—disrupts the current organism–environment relationship. When this happens, the child actively reorganizes his or her behavior so the various components of the system work together again but in a more complex, effective way.

APPLY: Mario wants to find out precisely how children of different ages recall stories. Anna is interested in how adult–child communication in different cultures influences children's storytelling. Which theoretical perspective has Mario probably chosen? How about Anna? Explain. (pp. 21–23, 24–25)

Mario has probably chosen an information-processing perspective. In this approach, he will break down the process by which children recall stories into the individual steps involved. Then he will analyze each step separately so that he can compare them in detail as they apply to children of different ages.

Anna is more likely to choose a sociocultural perspective, focusing on the ways in which *culture*—a social group's values, beliefs, customs, and skills—is transmitted from one generation to the next through social interaction. For example, she might compare the ways children in different cultures engage in storytelling with adults and older peers and how these interactions help them develop the ways of telling stories that are valued within their culture.

CONNECT: Return to the Biology and Environment box on pages 10–11. How does the story of John and Gary illustrate bidirectional influences within the microsystem, as described in ecological systems theory? (pp. 10, 25–27)

The microsystem consists of activities and interaction patterns in the child's immediate surroundings. Bronfenbrenner emphasizes that, to understand child development at this level, we must keep in mind that all relationships are *bidirectional:* Adults affect children's behavior, but children's biologically and socially influenced characteristics—their physical attributes, personalities, and capacities—also affect adults' behavior. In the example on pages xx–xx, both John and Gary experienced similar environmental stressors during their childhood and adolescence. Gary was able to overcome the odds and create a happy, healthy, well-adapted life, but John fell victim to the effects of the adversity he had experienced in his earlier years. Gary's personal qualities, such as his ability to make new friends and adapt to new surroundings each time his family moved,

likely contributed to his resilience. In contrast, John responded to similar changes by becoming anxious and angry, picking arguments with his parents, siblings, and peers.

The story of John and Gary also illustrates how social support outside the immediate family can contribute to resilience. Gary's close relationship with his grandfather may have helped him overcome the effects of a stressful home life while also providing him with a positive role model. And unlike John, Gary had opportunities to participate in community life—for example, by volunteering for Habitat for Humanity—which likely strengthened his resilience.

REFLECT: To illustrate the chronosystem in ecological systems theory, select an important event from your childhood, such as a move to a new neighborhood or a class with an inspiring teacher. How did the event affect you? How might its impact have differed had you been five years younger? How about five years older? (p. 27)

This is an open-ended question with no right or wrong answer.

REVIEW: Why might a researcher choose structured observation over naturalistic observation? How about the reverse? What might lead the researcher to opt for clinical interviewing over systematic observation? (pp. 31–33)

In *naturalistic observation,* researchers go into the field, or natural environment, and record their observations of the behavior of interest. Researchers choose this approach when it is important for them to see directly the everyday behaviors they hope to explain.

In *structured observation,* the investigator sets up a laboratory situation that evokes the behavior of interest, so that every participant has an equal opportunity to display the response. Structured observation permits greater control over the research situation than does naturalistic observation. It is especially useful for studying behaviors, such as parent–child or friendship interactions, which investigators rarely have an opportunity to see in everyday life. However, it may not yield observations that are typical of participants' behavior in everyday life, and it provides little information about the reasoning behind their responses.

Systematic observation provides information about how people behave but says little about the reasoning behind their responses. Researchers who are interested in exploring participants' perceptions, thoughts, abilities, feelings, attitudes, beliefs, or past experiences often select a *clinical interview*—a flexible, conversational style used to probe for the participant's point of view. The clinical interview permits people to display their thoughts in terms as close as possible to the way they think in everyday life. This method also provides a great deal of information in a fairly short period of time—far more than could be captured by observing behavior for the same amount of time.

APPLY: A researcher wants to study the thoughts and feelings of children who have a parent on active duty in the military. Which method should she use? Why? (p. 33)

The clinical interview is best suited to investigating this research question, because the researcher wants to learn about children's thoughts and feelings. The clinical interview permits children to display their thoughts in terms that are as close as possible to the way they think in everyday life. This method also provides a large amount of information in a fairly brief period.

The researcher might also consider using the structured interview, in which each participant is asked the same questions in the same way. The structured interview eliminates the risk that variations in children's responses may reflect the manner of interviewing rather than real differences in their thoughts about the topic. It is also more efficient: Answers are briefer and can be gathered from an entire group at the same time. However, structured interviews do not yield the same depth of information as a clinical interview.

CONNECT: What strengths and limitations do the clinical, or case study, method and ethnography have in common? (pp. 34–35)

Both the clinical method and ethnography are descriptive, qualitative research techniques. Whereas the clinical method is a way of obtaining as complete a picture as possible of a single individual, ethnography is directed toward understanding a culture or distinct social group through *participant observation.* A major strength of both methods is that they yield rich, detailed descriptions that offer insights into many aspects of experience and the multiple factors affecting development. A limitation of both methods is that investigators' cultural values and theoretical preferences may lead them to observe selectively or misinterpret what they see. Another limitation is that findings cannot be assumed to generalize to other individuals or cultures.

REVIEW: Explain how cohort effects can distort the findings of both longitudinal and cross-sectional studies. How does the sequential design reveal cohort effects? (pp. 40–42)

Both longitudinal and cross-sectional studies can be influenced by cohort effects—the particular set of historical and cultural conditions that influence individuals born in the same time period. Therefore, results based on one cohort may not apply to children developing at other times. For example, a longitudinal study of social development carried out around the time of World War II would probably result in quite different findings than if it were carried out in the first decade of the twenty-first century, during the decade of the 1960s, or during the Great Depression of the 1930s. Similarly, a cross-sectional design that compares 5-year-old cohorts and 15-year-old cohorts—groups born and reared in different years—may not really identify age-related changes. Rather, the results may reflect unique experiences associated with the different historical time period in which each age group grew up.

In *sequential designs,* researchers overcome some of these limitations by conducting several similar longitudinal or cross-sectional studies, or *sequences,* at varying times. Sequential designs permit researchers to find out whether cohort effects are operating by comparing participants of the same age who were born in different years. If the samples do not differ on the measured variables, the researcher can rule out cohort effects.

APPLY: A researcher compares children who went to summer leadership camps with children who attended athletic camps. She finds that those who attended leadership camps are friendlier. Should the investigator tell parents that sending children to leadership camps will cause them to be more sociable? Why or why not? (p. 37)

No. This study uses a correlational design, in which the researcher looks at relationships between participants' characteristics and their behavior or development. Although this type of design allows researchers to gather information on individuals in their natural life circumstances, it does not permit them to infer cause and effect. Therefore, the researcher cannot conclude that attending summer leadership camps is superior to attending athletic camps. Perhaps more sociable children choose to attend leadership camps over athletic camps. It is also possible that a third variable that the researcher did not even consider contributed to the research findings.

CONNECT: Review the experiment on music lessons and intelligence reported in the Social Issues: Education box on page 44. Why was it ethically important for the researchers to offer music lessons to the no-lessons control group during the year after completion of the study? (*Hint:* Refer to Table 1.6.) (pp. 43–46)

One of the research rights established by the American Psychological Association states that when researchers are investigating experimental treatments believed to be beneficial, children in control groups have the right to alternative beneficial treatments if they are available. In this case, music lessons were found to have beneficial effects on children's mental test performance. Therefore, once this favorable aspect of music lessons was known, it was important that the no-lessons control group be given an opportunity similar to the advantage provided to the experimental group.

REFLECT: Suppose a researcher asks you to enroll your baby in a 10-year longitudinal study. What factors would lead you to agree and to stay involved? Do your answers shed light on why longitudinal studies often have biased samples? Explain. (pp. 40–41)

This is an open-ended question with no right or wrong answer.

SUGGESTED READINGS

Cabeza, R., Nyberg, L., & Park, D. (2009). *Cognitive neuroscience of aging: Linking cognitive and cerebral aging*. New York: Oxford University Press. Examines a new scientific discipline, known as the cognitive neuroscience of aging. Topics include noninvasive measures of cerebral aging; the effects of cerebral aging on cognitive functions like perception, memory, and attention; and applications of brain research.

Coll, C. G., & Marks, K. (2009). *Immigrant stories: Ethnicity and academics in middle childhood.* New York: Oxford University Press. A longitudinal study of first- and second-generation immigrant youths, this book examines the unique challenges and strengths of these children and their families. Topics include cultural attitudes and identity development, academic achievement, the importance of community resources, and the importance of public policies for immigrant families.

Freeman, M., & Mathison, S. (2008). *Researching children's experiences.* New York: Guilford. Presents an extensive overview of research methods commonly used to study children and adolescents. The authors also present information on recruiting minors for research, the roles and responsibilities of researchers, the importance of understanding the child's developmental level, and ethical considerations and challenges.

MEDIA MATERIALS

For details on individual video segments that accompany the DVDs for *Infants, Children, and Adolescents*, Seventh Edition, please see the DVD *Guide for Explorations in Child Development*. The DVD and DVD *Guide* are available through your Pearson sales representative.

Additional DVDs and videotapes that may be useful in your class are listed below. They are not available through your Pearson sales representative, but you can order them directly from the distributor. (See contact information at the end of this manual.)

Bandura's Social Cognitive Theory: An Introduction (2003, Davidson Films, 38 min.). This film, narrated by Albert Bandura, uses archival materials and new footage to introduce students to the vocabulary and innovative methods of Bandura's work. Using examples from his own life, Bandura illustrates the role of chance in shaping the life course. He also describes his early work with Bobo dolls and his later research on self-efficacy. The four processes of observational learning are reviewed. A Learning Guide is available.

B. F. Skinner: A Fresh Appraisal (1999, Davidson Films, 40 min.). Using both archival and newer footage, this program takes a fresh look at Skinner and his theory. The vocabulary Skinner developed to describe his ideas and feelings is introduced in context so the student understands how the terms were intended to be used and the research that produced them. The program also lays to rest some myths about Skinner and credits him with contributions seldom attributed to him.

Child Development Theorists (2009, Insight Media, 20 min.). This program discusses the major child development theorists since Freud, explains how their theories differ, and emphasizes the value of combining approaches. It offers historical footage and photographs and discusses such theorists as Freud, Montessori, Vygotsky, Piaget, Erikson, Bowlby, Skinner, Spock, Kohlberg, and Gardner.

Endless Questions: Critical Thinking and Research (2006, Aquarius Health Care Media, 30 min.). This program, part of the *Inside Out* series, shows how researchers investigate the question, Does happiness lead to good health? using multiple methods: case study, survey, naturalistic observation, correlational studies, and controlled experiments.

Infant and Child Development (2001, Insight Media, 30 min.). This program shows how a newborn acquires the skills necessary for interacting with the environment. It presents a variety of developmental theories, including Jean Piaget's stage theory of cognitive development.

John Bowlby: Attachment Theory Across Generations (2007, Davidson Films, 40 min.). Featuring archival footage of Dr. Bowlby and a 20-year longitudinal case study of emotional development, this program examines how attachment relationships affect adult behaviors and how attachment patterns are transmitted through the generations.

John Locke (2004, Films Media Group, 21 min.). This program chronicles the life and work of the seventeenth-century English philosopher and political theorist John Locke, whose belief that human character is shaped entirely by experience served as the forerunner of the behaviorist perspective on human development.

Learning: Observational and Cognitive Approaches (2001, ACT Media, 30 min.). This program discusses observational learning and uses the research of B. F. Skinner to illustrate the cognitive processes involved in learning.

Lev Vygotsky: One Man's Legacy Through His Life and Practice (2009, PHD Lowe Productions, 3 segments, 1 hr. 53 min. total). Using interviews, commentary from family members and educators, and archival photos and film footage, this series examines the life and work of Lev Vygotsky. Key Vygotskian concepts, such as the importance of make-believe play for early cognitive development and the zone of proximal development, are also discussed.

Research Ethics (2008, Insight Media, 21 min.). This program examines ethical issues in social science, natural science, and health research, including plagiarism, crediting and citing sources, the use of human and animal subjects, informed consent, debriefing, privacy, confidentiality, and conflicts of interest.

Research Methods (2001, ACT Media, 30 min.). This program provides an overview of observational and descriptive research by illustrating how the scientific method is used to study the relationship between violent video games and aggression.

Research Methods in the Social Sciences (2005, Films Media Group, 4-part series, each segment 23 to 46 min.). Focusing primarily on research in psychology, this series explores qualitative and quantitative research methods used in a wide range of disciplines. Hosted and narrated by students, each program demonstrates how to test hypotheses, prepare experiments, and analyze data. Instructors' guides are available online.

The Developing Child (2001, WGBH Boston with the American Psychological Association, 30 min.). This program, Part 5 of the 12-part series *Discovering Psychology*, reviews the nature–nurture debate and shows how developmental psychologists study the contributions of both heredity and environment to child development.

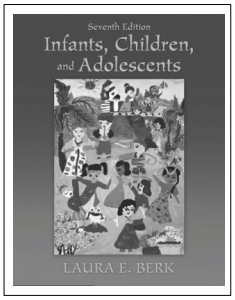
The Developing Person: Theories of Development (2003, Insight Media, 30 min.). This film traces the history of the scientific study of human development from Locke and Rousseau to Piaget and Erikson. It explores the lifespan perspective, examines Urie Bronfenbrenner's ecological model of development, and introduces psychoanalytic theory, learning theory, behaviorism, and cognitive theory.

Theories of Human Development (2002, Insight Media, 6 segments, 30 min. each). This series of six lectures by Malcom W. Watson presents key theorists in human development: Sigmund Freud, Erik Erikson, John Bowlby, Mary Ainsworth, Albert Bandura, Jean Piaget, and Lev Vygotsky.

Why Study Human Behavior? (2001, ACT Media, 30 min.). This program introduces psychology as a science of behavior and mental processes. It explains how our lives are enhanced when we understand why we think and act as we do.

Young Minds: Is Zero-to-Three Destiny? (1999, Films Media Group, 11 min.). The idea that Mozart's music can have a lasting impact on the growth of a baby's brain captured the imagination of parents and policymakers alike. In this brief segment, *NewsHour* correspondent Betty Ann Bowser talks with advocates on both sides of the zero-to-three debate, including Yale child psychiatrist Kyle Pruett, who argues for the crucial nature of the child's first three years, and skeptics John Bruer, author of *The Myth of the First Three Years,* and Harvard child psychologist Jerome Kagan.

Infants, Children, and Adolescents



Chapter 1

History, Theory, and Research Strategies

Domains of Development

Domain	Changes in
Physical	■ Body size & proportions, appearance ■ Functioning of body systems, health ■ Perceptual & motor capacities
Cognitive	■ Intellectual abilities
Emotional and Social	■ Emotional communication ■ Self-understanding, knowledge about others ■ Interpersonal skills & relationships ■ Moral reasoning & behavior

Periods of Development

Prenatal	**Conception to birth**
Infancy and Toddlerhood	**Birth to 2 years**
Early Childhood	**2 to 6 years**
Middle Childhood	**6 to 11 years**
Adolescence	**11 to 18 years**
Emerging Adulthood	**18 to 25 years**

Theory

An orderly, integrated set of statements that

- describes behavior.
- explains behavior.
- predicts behavior.

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Basic Issues in Development

Figure 1.1

1. Continuous or discontinuous?
2. One course of development or many possible courses?
3. Relative influence of nature and nurture?

Continuous or Discontinuous Development

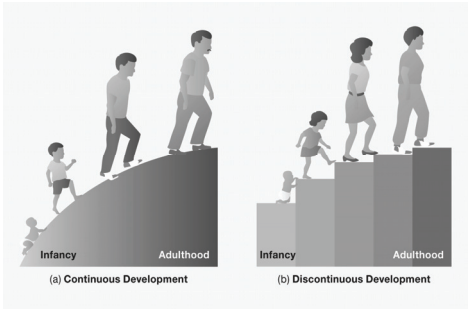


Figure 1.2

Nature and Nurture

Nature
- Inborn, biologic givens
- Based on genetic inheritance

Nurture
- Physical and social world
- Influences biological and psychological development

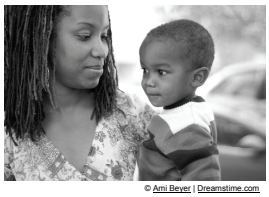
Stability vs. Plasticity?

Stability
- Individuals high or low in a characteristic remain so at later ages.
- Early experience may a have lifelong impact.

Plasticity
- Change is possible, based on **experiences**.

Resilient Children

- Personal characteristics
- A warm parental relationship
- Social support outside the immediate family
- Community resources and opportunities



Historical Views of Childhood

Medieval Era	Childhood (to age 7 or 8) regarded as separate phase with special needs, protections
16th Century	Puritan "child depravity" views
17th Century	John Locke "tabula rasa" or "blank slate" view; continuous development
18th Century	Jean-Jacques Rousseau "noble savages" view; natural maturation

Early Scientific Study of Development

Evolutionary Theory	Darwin's ideas of natural selection and survival of the fittest are still influential.
Normative Approach	Hall & Gesell: Age-related averages based on measurements of large numbers of children
Mental Testing Movement	Binet & Simon: Early developers of intelligence tests

Freud's Three Parts of the Personality

Id	■ Largest portion of the mind ■ Unconscious, present at birth ■ Source of biological needs & desires
Ego	■ Conscious, rational part of mind ■ Emerges in early infancy ■ Redirects id impulses acceptably
Superego	■ The conscience ■ Develops from ages 3 to 6, from interactions with caregivers

Freud's Psychosexual Stages

Oral
Anal
Phallic
Latency
Genital

Erikson's Psychosocial Stages

Basic trust v. mistrust	Birth–1 year	**Identity v. role confusion**	Adolescence
Autonomy v. shame and doubt	1–3 years	**Intimacy v. isolation**	Emerging adulthood
Initiative v. guilt	3–6 years	**Generativity v. stagnation**	Adulthood
Industry v. inferiority	6–11 years	**Integrity v. despair**	Old age

Behaviorism & Social Learning

Classical Conditioning	Stimulus – Response
Operant Conditioning	Reinforcers & punishments
Social-Cognitive Approach	Modeling Self-efficacy

Social Learning Theory

Modeling or Observational Learning	A baby claps her hands after her mother does; a teenager dresses like her friends.
Cognition	Stressed today; *social-cognitive approach*
Personal Standards	Children begin to believe their own abilities will help them succeed.

Behavior Modification

Combines conditioning and modeling to eliminate undesirable behaviors and increase desirable responses

- Example: Four- and 5-year-olds' unruliness in preschool was reduced using tokens, given for good behavior, that could be traded for candy.
- Example: Children being treated for acute burn injuries played a virtual reality game that distracted them from the procedure and caused their levels of pain and anxiety to drop dramatically.

Limitations of Behaviorism and Social Learning Theory

- Too narrow a view of important environmental influences
- Bandura's work is unique in that it grants children an active role in their own learning.

Piaget's Stages of Cognitive Development

STAGE	PERIOD OF DEVELOPMENT	DESCRIPTION
Sensorimotor	Birth–2 years	Infants "think" by acting on the world with their eyes, ears, hands, and mouth. As a result, they invent ways of solving sensorimotor problems, such as pulling a lever to hear the sound of a music box, finding hidden toys, and putting objects in and taking them out of containers.
Preoperational	2–7 years	Preschool children use symbols to represent their earlier sensorimotor discoveries. Development of language and make-believe play takes place. However, thinking lacks the logic of the two remaining stages.
Concrete operational	7–11 years	Children's reasoning becomes logical and better organized. School-age children understand that a certain amount of lemonade or play dough remains the same even after its appearance changes. They also organize objects into hierarchies of classes and subclasses. However, thinking falls short of adult intelligence. It is not yet abstract.
Formal operational	11 years on	The capacity for abstract, systematic thinking enables adolescents, when faced with a problem, to start with a hypothesis, deduce testable inferences, and isolate and combine variables to see which inferences are confirmed. Adolescents can also evaluate the logic of verbal statements without referring to real-world circumstances.

Jean Piaget

Table 1.2

Information-Processing Flowchart

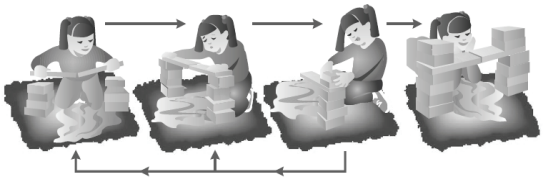
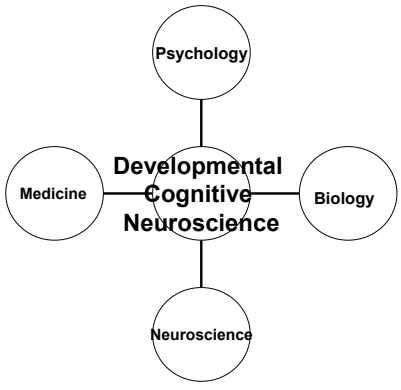


Figure 1.3



Neuroscientists

- Making rapid progress in identifying the types of experiences that support or undermine brain development at various ages
- Clarifying the brain bases of many learning and behavioral disorders
- Contributing to treatments for children with disabilities

Ethology

Concerned with the adaptive or survival value of behavior and its evolutionary history

Roots traced to Darwin:

- Imprinting
- Critical period
- Sensitive period

Evolutionary Developmental Psychology

- Seeks to understand adaptive value of human competencies
- Studies cognitive, emotional, and social competencies as they change with age
- Expands upon ethology
- Wants to understand the entire *organism–environment system*

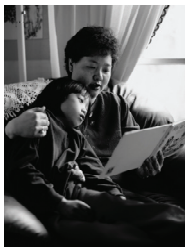
Sensitive Period

- An optimal time for certain capacities to emerge
- Individual is especially responsive to environment
- Boundaries less clearly defined than a critical period

Vygotsky's Sociocultural Theory

Transmission of *culture* to new generation
- Beliefs, customs, skills

Social interaction vital for cognitive development
- Cooperative dialogues with more knowledgeable members of society



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Ecological Systems Theory

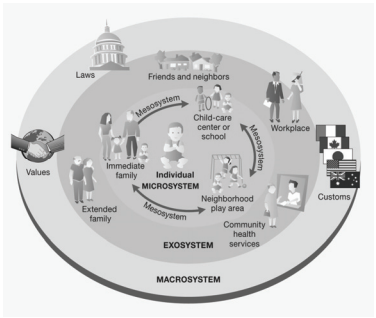

Figure 1.4

Dynamic Systems Perspective

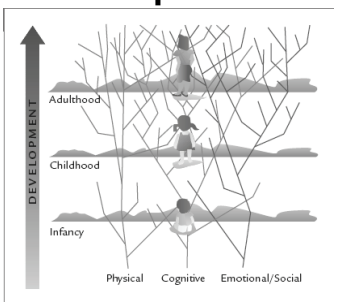

Figure 1.5

Comparing Child Development Theories

THEORY	CONTINUOUS OR DISCONTINUOUS DEVELOPMENT?	ONE COURSE OF DEVELOPMENT OR MANY?	RELATIVE INFLUENCE OF NATURE AND NURTURE?
Psychoanalytic perspective	*Discontinuous:* Psychosexual and psychosocial development takes place in stages.	*One course:* Stages are assumed to be universal.	*Both nature and nurture:* Innate impulses are channeled and controlled through child-rearing experiences. *Early experiences* set the course of later development.
Behaviorism and social learning theory	*Continuous:* Development involves an increase in learned behaviors.	*Many possible courses:* Behaviors reinforced and modeled may vary from child to child.	*Emphasis on nurture:* Development results from conditioning and modeling. *Both early and later experiences* are important.
Piaget's cognitive-developmental theory	*Discontinuous:* Cognitive development takes place in stages.	*One course:* Stages are assumed to be universal.	*Both nature and nurture:* Development occurs as the brain grows and children exercise their innate drive to discover reality in a generally stimulating environment. *Both early and later experiences* are important.
Information processing	*Continuous:* Children gradually improve in perception, attention memory, and problem-solving skills.	*One course:* Changes studied characterize most or all children.	*Both nature and nurture:* Children are active, sense-making beings who modify their thinking as the brain grows and they confront new environmental demands. *Both early and later experiences* are important.

Table 1.3

Comparing Child Development Theories (continued)

Ethology and evolutionary developmental psychology	*Both continuous and discontinuous:* Children gradually develop a wider range of adaptive behaviors. Sensitive periods occur, in which qualitatively distinct capacities emerge fairly suddenly.	*One course:* Adaptive behaviors and sensitive periods apply to all members of a species.	*Both nature and nurture:* Evolution and heredity influence behavior, and learning lends greater flexibility and adaptiveness to it. In sensitive periods, *early experiences* set the course of later development.
Vygotsky's sociocultural theory	*Both continuous and discontinuous:* Language acquisition and schooling lead to stagewise changes. Dialogues with more expert members of society also lead to continuous changes that vary from culture to culture.	*Many possible courses:* Socially mediated changes in thought and behavior vary from culture to culture.	*Both nature and nurture:* Heredity, brain growth, and dialogues with more expert members of society jointly contribute to development. *Both early and later experiences* are important.
Ecological systems theory	*Not specified.*	*Many possible courses:* Children's characteristics join with environmental forces at multiple levels to mold development in unique ways.	*Both nature and nurture:* Children's characteristics and the reactions of others affect each other in a bidirectional fashion. Layers of the environment influence child-rearing experiences. *Both early and later experiences* are important.
Dynamic systems perspective	*Both continuous and discontinuous:* Change in the system is always ongoing. Stagelike transformations occur as children reorganize their behavior so components of the system work as a functioning whole.	*Many possible courses:* Biological makeup, everyday tasks, and social experiences vary, yielding wide individual differences in specific skills.	*Both nature and nurture:* The child's mind, body, and physical and social surroundings form an integrated system that guides mastery of new skills. *Both early and later experiences* are important.

Table 1.3, continued

Scientific Research

- Hypothesis: prediction drawn directly from a theory
- Research methods: activities of participants
- Research designs: overall plans for research studies

Systematic Observation

Naturalistic Observation

- In the "field" or natural environment where behavior happens

Structured Observations

- Laboratory situation set up to evoke behavior of interest
- All participants have equal chance to display behavior

Interviews

Clinical Interview

- Flexible, conversational style
- Probes for participant's point of view
- Accurate?

Structured Interview

- Each participant is asked same questions in the same way.
- May use questionnaires, get answers from groups
- Not as in-depth

Case Study

- Brings together wide range of information, including interviews, observations, test scores
- Best used to study unique types
- May be subjective

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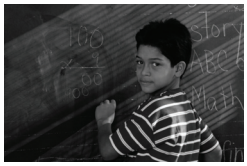
Strengths/Limitations of Information-Gathering Methods

METHOD	DESCRIPTION	STRENGTHS	LIMITATIONS
Systematic Observation			
Naturalistic observation	Observation of behavior in natural contexts.	Reflects participants' everyday behaviors.	Cannot control conditions under which participants are observed.
Structured observation	Observation of behavior in a laboratory, where conditions are the same for all participants.	Grants each participant an equal opportunity to display the behavior of interest. Permits study of behaviors rarely seen in everyday life.	May not yield observations typical of participants' behavior in everyday life.
Self-Reports			
Clinical interview	Flexible interviewing procedure in which the investigator obtains a complete account of the participant's thoughts.	Comes as close as possible to the way participants think in everyday life. Great breadth and depth of information can be obtained in a short time.	May not result in accurate reporting of information. Flexible procedure makes comparing individuals' responses difficult.
Structured interview, questionnaires, and tests	Self-report instruments in which each participant is asked the same questions in the same way.	Permits comparisons of participants' responses and efficient data collection. Researchers can specify answer alternatives that participants might not think of in an open-ended interview.	Does not yield the same depth of information as a clinical interview. Responses are still subject to inaccurate reporting.
Clinical, or Case Study, Method	A full picture of one individual's psychological functioning, obtained by combining interviews, observations, and sometimes test scores.	Provides rich, descriptive insights into processes of development.	May be biased by researchers' theoretical preferences. Findings cannot be applied to individuals other than the participant.
Ethnography	Participant observation of a culture or distinct social group. By making extensive field notes, the researcher tries to capture the culture's unique values and social processes.	Provides a more complete and accurate description than can be derived from a single observational visit, interview, or questionnaire.	May be biased by researchers' values and theoretical preferences. Findings cannot be applied to individuals and settings other than the ones studied.

Table 1.4

Cultural Influences: Immigrant Youths' Adaptation



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- Academic achievement and adjustment: Many children of immigrant parents from diverse countries adapt amazingly well.
- The experience of these children is not problem-free, but family and community cohesion, supervision, and high expectations combine to promote favorable outcomes.

Correlational Design

Researchers gather information and make no effort to alter their experiences.

Limited because cause and effect cannot be inferred

Correlation Coefficients

- The magnitude of the number indicates the ***strength*** of the relationship.
- The sign of the number (+ or –) indicates the ***direction*** of the relationship.

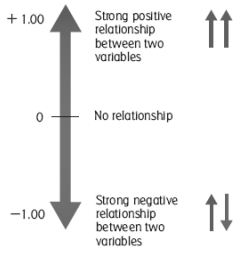

Figure 1.6

Correlation Coefficients

Magnitude

- Size of the number between 0 and 1
- Closer to 1 (positive or negative) is a stronger relationship

Direction

- Indicated by + or – sign
- Positive (+) means as one variable increases, so does the other.
- Negative (–) means as one variable increases, the other decreases.

Independent and Dependent Variables

Independent

- Experimenter changes or manipulates
- Expected to cause changes in another variable

Dependent

- Experimenter measures but does not manipulate
- Expected to be influenced by the independent variable

Laboratory Experiment Using Independent and Dependent Variables

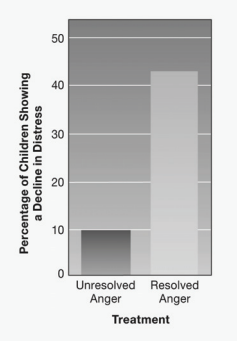

Figure 1.7

Modified Experiments

Field Experiments

- Use rare opportunities for random assignment in natural settings

Natural Experiments

- Compare differences in treatment that already exist
- Groups chosen to match characteristics as much as possible

Designs for Studying Development

Longitudinal	Same participants studied repeatedly at different ages
Cross-sectional	Participants of differing ages all studied at the same time
Sequential	Several similar cross-sectional or longitudinal studies are conducted at varying times.
Microgenetic	Participants are presented with a novel task, and their mastery is followed over a series of sessions.

Strengths and Limitations of Research Designs

DESIGN	DESCRIPTION	STRENGTHS	LIMITATIONS
GENERAL			
Correlational	The investigator obtains information on participants without altering their experiences.	Permits study of relationships between variables.	Does not permit inferences about cause-and-effect relationships.
Experimental	The investigator manipulates an independent variable and examines its effect on a dependent variable. Can be conducted in the laboratory or in the natural environment.	Permits inferences about cause-and-effect relationships.	When conducted in the laboratory, findings may not generalize to the real world. In *field experiments*, control over the treatment is usually weaker than in the laboratory. In *natural, or quasi-, experiments*, lack of random assignment substantially reduces the precision of research.
DEVELOPMENTAL			
Longitudinal	The investigator studies the same group of participants repeatedly at different ages.	Permits study of common patterns and individual differences in development and relationships between early and later events and behaviors.	Age-related changes may be distorted because of biased sampling, selective attrition, practice effects, and cohort effects.
Cross-sectional	The investigator studies groups of participants differing in age at the same point in time.	More efficient than the longitudinal design.	Does not permit study of individual developmental trends. Age differences may be distorted because of cohort effects.
Sequential	The investigator follows a sequence of samples (two or more age groups), collecting data on them at the same points in time.	Permits both longitudinal and cross-sectional comparisons. Reveals cohort effects. Permits tracking of age-related changes more efficiently than the longitudinal design.	May have the same problems as longitudinal and cross-sectional strategies, but the design itself helps identify difficulties.
Microgenetic	The investigator presents children with a novel task and follows their mastery over a series of closely spaced sessions.	Offers insights into the process of development.	Requires intensive study of participants' moment-by-moment behaviors. The time required for participants to change is difficult to anticipate. Practice effects may distort developmental trends.

Table 1.5

Sequential Designs

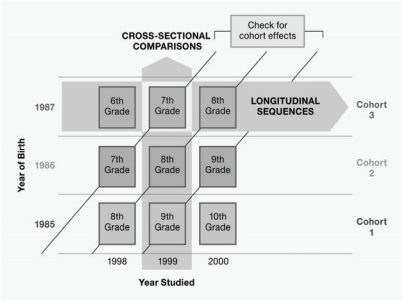

Figure 1.8

Can Musical Experience Enhance Intelligence?

- "Mozart effect"
- Must be long-lasting and participatory to provide lasting gains
- Other enrichment activities may produce similar gains.

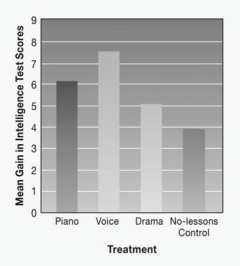

Figure 1.9

Children's Research Rights

- Protection from harm
- Informed consent
- Privacy
- Knowledge of results
- Beneficial treatments

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CHAPTER 2
GENETIC AND ENVIRONMENTAL FOUNDATIONS

CHAPTER-AT-A-GLANCE

Chapter Outline	Instruction Ideas	Supplements
Genetic Foundations pp. 52–62 The Genetic Code • The Sex Cells • Boy or Girl? • Multiple Births • Patterns of Genetic Inheritance • Chromosomal Abnormalities	Learning Objectives 2.1–2.8 Learning Activities 2.1–2.4 Ask Yourself p. 62	Test Bank Items 1–44, 99 Please contact your Pearson representative for a wide range of video offerings available to adopters.
Reproductive Choices pp. 63–69 Genetic Counseling • Prenatal Diagnosis and Fetal Medicine • The Alternative of Adoption	Learning Objective 2.9 Lecture Enhancement 2.1 Learning Activities 2.5–2.6 Ask Yourself p. 69	Test Bank Items 45–53, 100
Environmental Contexts for Development pp. 69–81 The Family • Socioeconomic Status and Family Functioning • Affluence • Poverty • Beyond the Family: Neighborhoods and Schools • The Cultural Context	Learning Objectives 2.10–2.13 Lecture Enhancements 2.2–2.3 Learning Activities 2.7–2.8 Ask Yourself p. 81	Test Bank Items 54–77, 101–103
Understanding the Relationship Between Heredity and Environment pp. 82–88 The Question, "How Much?" • The Question, "How?"	Learning Objective 2.14 Lecture Enhancement 2.4 Learning Activity 2.9 Ask Yourself p. 88	Test Bank Items 78–98, 104–105

BRIEF CHAPTER SUMMARY

This chapter examines the foundations of development: heredity and environment. The principles of genetic transmission determine the characteristics that make us human and contribute to individual differences in appearance and behavior. Inheritance of harmful recessive genes and abnormalities of the chromosomes are major causes of serious developmental problems. Genetic counseling and prenatal diagnosis help people at risk for transmitting hereditary disorders assess their chances of giving birth to a healthy baby.

Environmental factors also affect development. The family has an especially powerful impact, operating as a complex, dynamic social system in which members exert direct, indirect, and third-party effects on one another. Socioeconomic status influences child-rearing practices: Poverty and homelessness undermine effective family functioning and children's well-being, while affluence may lead to overscheduling and lack of emotional closeness, which also have negative consequences. The quality of community life, from neighborhoods and schools to small towns and cities, also contributes to children's development. Cultural values—for example, the degree to which a society emphasizes collectivism versus individualism—combine with public policies, laws, and government programs to shape experiences in all of these contexts.

Some child development specialists believe that it is useful and possible to determine "how much" heredity and environment contribute to individual differences. Others think that the effects of heredity and environment cannot be clearly separated. Instead, they want to discover "how" these two major determinants of development work together in a complex, dynamic interplay.

LEARNING OBJECTIVES

After reading this chapter, you should be able to:

2.1 Distinguish between genotypes and phenotypes. (p. 51)

2.2 Describe the structure and function of chromosomes and DNA molecules. (p. 52)

2.3 Explain the process of mitosis. (p. 53)

2.4 Describe the process of meiosis, and explain how it leads to genetic variability. (pp. 53–54)

2.5 Describe the genetic events that determine the sex of the new organism. (pp. 54–55)

2.6 Identify two types of twins, and explain how each is created. (p. 55)

2.7 Explain how alleles influence the inheritance of traits, such as through dominant–recessive inheritance, incomplete dominance, X-linked inheritance, genomic imprinting, mutation, and polygenic inheritance. (pp. 56–60)

2.8 Describe major chromosomal abnormalities, and explain how they occur. (pp. 60–62)

2.9 Discuss reproductive choices available to prospective parents, noting the pros and cons of reproductive technologies, and the alternative of adoption. (pp. 63–68)

2.10 Describe family functioning from the ecological systems perspective, citing direct and indirect family influences and explaining the view of the family as a dynamic, changing system. (pp. 69–71)

2.11 Discuss the impact of socioeconomic status, including affluence and poverty, on family functioning. (pp. 71–75)

2.12 Summarize the role of neighborhoods and schools in the lives of children, including contributions of social support as an outgrowth of family–neighborhood ties. (pp. 75–77)

2.13 Discuss how cultural values and public policies influence the well-being of children. (pp. 77–81)

2.14 Explain the various ways heredity and environment may combine to influence complex human traits, and discuss epigenesis. (pp. 82–88)

LECTURE OUTLINE

I. GENETIC FOUNDATIONS (pp. 52–62)

A. The foundations of development are heredity and environment.
   1. Heredity supplies our **genotype** (genetic makeup).
   2. Our **phenotypes** (directly observable characteristics) reflect the combined effects of heredity and environment.
   3. **Chromosomes,** structures in the *nucleus* of each cell, store and transmit genetic information.

B. The Genetic Code (pp. 52–53)
   1. Chromosomes are made up of molecules of **deoxyribonucleic acid (DNA).**
   2. A **gene** is a segment of DNA that contains instructions for making proteins. The number and variety of proteins made by human genes account for the complexity of our species.
   3. DNA duplicates itself through the process of **mitosis,** during which chromosomes copy themselves, so that each new cell receives identical genetic information.

C. The Sex Cells (pp. 53–54)
   1. New individuals are created when the sex cells, or **gametes,** combine.
   2. Each gamete—formed through a cell division process called **meiosis**—contains only 23 chromosomes (half the number normally present in body cells).
   3. When the gametes combine at conception, the resulting cell, a **zygote,** again has 46 chromosomes.
   4. In meiosis, **crossing over** occurs, and genes from one chromosome are replaced by genes from another, creating new hereditary combinations. Then chance determines which member of each pair will end up in the same gamete.
   5. The cells from which sperm arise are produced throughout life, allowing a healthy man to father a child at any age after sexual maturity.

6. The female is born with all her ova present in her ovaries; 350 to 450 ova will mature during the three to four decades of a woman's childbearing years.

D. Boy or Girl? (pp. 54–55)
   1. The 22 matching pairs of chromosomes within a human cell are called the **autosomes.**
   2. The twenty-third pair consists of **sex chromosomes,** called XX in females and XY in males.
   3. The sex of the new organism is determined by whether an X-bearing or a Y-bearing sperm fertilizes the ovum.

E. Multiple Births (pp. 55–56)
   1. **Fraternal,** or **dizygotic, twins** result from the release and fertilization of two ova.
   2. **Identical,** or **monozygotic, twins,** who have the same genetic makeup, result when a single zygote that has started to duplicate separates into two clusters of cells that develop into two individuals.

F. Patterns of Genetic Inheritance (pp. 56–60)
   1. Two forms of each gene, each called an **allele,** occur at the same place on the chromosomes—one inherited from the mother and one from the father.
   2. If the alleles from both parents are alike, the child is **homozygous** and will display the inherited trait.
   3. If the alleles are different, the child is **heterozygous,** and the relationships between the alleles determine the phenotype.
   4. Dominant–Recessive Inheritance
      a. In heterozygous pairings **dominant–recessive inheritance** occurs, in which only one allele, called *dominant,* affects the child's characteristics, while the other allele, called *recessive,* has no effect.
      b. An individual who inherits a heterozygous pair of alleles for a trait will be a **carrier** for the recessive trait and can pass it to his or her children.
      c. One of the most frequently occurring recessive disorders is *phenylketonuria.* The severity of recessive disorders varies due to the action of **modifier genes,** which enhance or dilute the effects of other genes.
      d. Serious diseases are rarely due to dominant alleles.
   5. Incomplete Dominance
      a. In **incomplete dominance,** both alleles are expressed in the phenotype, resulting in a combined trait, or one that is intermediate between the two.
      b. An example is the *sickle cell trait,* a heterozygous condition present in many black Africans. *Sickle cell anemia* occurs in full form when a child inherits two recessive alleles. In heterozygous individuals, the disease may occur when they experience oxygen deprivation—for example, at high altitudes.
   6. X–Linked Inheritance
      a. **X-linked inheritance** applies when a harmful allele is carried on the X chromosome. Males are more likely to be affected because the Y chromosome, which is shorter than the X, may not have a corresponding dominant allele to suppress the recessive allele.
      b. Besides X-linked disorders, the male is at a disadvantage in other ways, including higher rates of infant and childhood deaths, birth defects, and learning disabilities.
      c. Although the male disadvantage is generally offset by higher rates of male than female births, recent declines in the proportion of male births in industrialized countries may reflect a rise in stressful living conditions, which heighten spontaneous abortions, especially of male fetuses.
   7. Genomic Imprinting
      a. In a pattern of inheritance called **genomic imprinting,** some alleles are *imprinted,* or chemically marked, so that one pair member is activated, regardless of its makeup.
      b. Imprinting helps us understand certain puzzling genetic patterns—for example, why children are more likely to develop diabetes if their father, rather than their mother, suffers from it.
      c. Imprinting is involved in several childhood cancers and in *Prader-Willi syndrome,* a disorder with symptoms of mental retardation and severe obesity.
      d. Genetic imprinting can also operate on the sex chromosomes, as in *fragile X syndrome*—an inherited cause of mental retardation, which occurs only when the defective gene is passed from mother to child.
   8. Mutation
      a. **Mutation** is a sudden but permanent change in a DNA segment through which harmful genes are created.
      b. In *germline mutation,* which occurs in the cells that give rise to gametes, the defective DNA is passed on to the next generation when the affected individual mates.
      c. In *somatic mutation,* normal body cells mutate, and the DNA defect spreads to every cell derived from the affected body cell, eventually leading to disease or disability.

9. Polygenic Inheritance
    a. Complex traits result from **polygenic inheritance,** in which many genes are involved in determining a characteristic.
    b. Characteristics that vary on a continuum, such as height and intelligence, are due to polygenic inheritance.

G. Chromosomal Abnormalities (pp. 60–62)
1. Most chromosomal defects result from mistakes during meiosis. Because these abnormalities involve more DNA than single-gene disorders, they usually produce many mental and physical symptoms.
2. Down Syndrome
    a. *Down syndrome,* the most common chromosomal disorder, usually results from a failure of the twenty-first pair of chromosomes to separate during meiosis, so that the new individual inherits three, rather than two, of these chromosomes.
    b. Symptoms of Down syndrome include mental retardation, slow motor development, and distinct physical features.
    c. The risk of bearing a Down syndrome baby rises dramatically with maternal age. In some cases, the extra genetic material originates with the father.
3. Abnormalities of the Sex Chromosomes
    a. Most disorders of the autosomes, other than Down syndrome, disrupt development so severely that miscarriage occurs. Abnormalities of the sex chromosomes usually lead to fewer problems.
    b. Contrary to common myths, males with *XYY syndrome* are not always more aggressive and antisocial than XY males, and most children with sex chromosome disorders do not suffer from mental retardation. Rather, they have specific intellectual problems.

II. REPRODUCTIVE CHOICES (pp. 63–69)

A. Genetic Counseling (p. 63)
1. **Genetic counseling** can help a couple assess the likelihood of giving birth to a baby with a hereditary disorder and choose the best course of action in view of risks and family goals.
2. The genetic counselor prepares a *pedigree,* a family tree that identifies affected relatives and that can be used to estimate the likelihood that parents will have an abnormal child.

B. Prenatal Diagnosis and Fetal Medicine (pp. 63–65)
1. **Prenatal diagnostic methods** are medical procedures that permit detection of developmental problems before birth.
2. Prenatal diagnosis has led to advances in fetal medicine, permitting some problems to be treated before birth. However, these techniques frequently result in complications, most commonly premature labor and miscarriage.
3. Advances in *genetic engineering* offer new hope of correcting hereditary defects.
    a. Researchers are "annotating" the genome in an effort to understand the estimated 4,000 human disorders due to either single genes or an interplay of multiple genes and environmental factors.
    b. New treatments being explored include *gene therapy,* used to correct genetic abnormalities, and *proteomics,* modification of gene-specified proteins involved in disease.
4. Increasing numbers of individuals are turning to reproductive technologies, including *donor insemination, in vitro fertilization,* and *surrogate motherhood.* Laws are needed to regulate these practices, which raise complex ethical issues.

C. The Alternative of Adoption (pp. 65–68)
1. Because the availability of healthy babies has declined, more people in North America and Western Europe are adopting from other countries or accepting children who are past infancy or who have known developmental problems.
2. Adopted children and adolescents tend to have more learning and emotional difficulties than their peers, a difference that increases with the child's age at adoption.
3. Despite these risks, most adopted children fare well, and international adoptees, overall, fare better than birth siblings or institutionalized agemates who stay behind.
4. By adolescence, adoptees' lives are often complicated by unresolved curiosity about their roots. Despite concerns about their origins, most adoptees appear well-adjusted as adults.

III. ENVIRONMENTAL CONTEXTS FOR DEVELOPMENT (pp. 69–81)

A. The child's environment consists of many influences that combine to affect development, as described in ecological systems theory—from the *microsystem* (immediate settings) to the *macrosystem,* or broad climate of society.

B. The Family (pp. 69–71)
   1. In power and breadth of influence, no other context for development equals the family.
   2. The family is a network of interdependent relationships within which the behaviors of each member affect those of others through *bidirectional influences*.
   3. Direct Influences
      a. Research shows that when parents are firm but warm, children tend to cooperate; when children willingly comply with parental requests, parents are likely to be warm and gentle in the future.
      b. Harsh discipline tends to increase children's misbehavior, which, in turn, may lead to greater use of harsh punishment and greater unruliness by the child.
   4. Indirect Influences
      a. *Third parties* can serve as supports for or barriers to development.
      b. When a marital relationship is warm and considerate, mothers and fathers are more likely to engage in effective **coparenting,** mutually supporting each other's parenting behaviors. Parents whose marriage is hostile often interfere with one another's child-rearing efforts.
      c. When parental conflict strains children's adjustment, other family members, such as grandparents, may help restore effective interaction.
   5. Adapting to Change
      a. The family is a dynamic, ever-changing system in which each member adapts to the development of other members.
      b. The developmental status of each family member and the historical time period also contribute to a dynamic family system.
      c. In industrialized nations, socioeconomic status is an important factor in general patterns of family functioning.

C. Socioeconomic Status and Family Functioning (pp. 71–73)
   1. **Socioeconomic status (SES)** is an index of individuals' and families' social position and economic well-being that combines years of education, the prestige of one's job and the skill it requires, and income.
   2. SES is linked to timing of parenthood and to family size, as well as to child-rearing values and expectations.
      a. Lower-SES parents tend to value external characteristics, such as obedience, politeness, and neatness, and are more likely to use coercive discipline.
      b. Higher-SES parents are more likely to emphasize psychological traits, such as curiosity and happiness, and to take an interest in nurturing inner traits.
      c. In diverse cultures, education of women fosters patterns of thinking that improve quality of life, for both parents and children.
   3. Higher SES is associated with enhanced cognitive and language development, academic success, and reduced incidence of emotional and behavior problems.

D. Affluence (pp. 72, 74)
   1. Children of affluent parents with professionally and socially demanding lives may experience adjustment problems if these parents fail to engage in family interaction and parenting that promote favorable development.
   2. Poorly adjusted affluent young people report less emotional closeness and supervision from their parents than better-adjusted counterparts, especially when parents value their accomplishments more than their character.
   3. Eating dinner with parents is associated with a reduction in adjustment difficulties for both affluent and low-SES youths.

E. Poverty (pp. 74–75)
   1. Today, about 13 percent of people in the United States are poor. Those most affected by poverty are parents under age 25 with young children, elderly people who live alone, ethnic minorities, and women.
   2. The poverty rate is higher among children than any other age group.
   3. The constant stressors that accompany poverty weaken the family system.
   4. Homelessness, which has become more common in the past 30 years, has reduced the life chances of many children. An estimated 23 percent of the homeless are families with children.

F. Beyond the Family: Neighborhoods and Schools (pp. 75–77)
   1. Child abuse and neglect are greatest in areas where community life is disrupted.
   2. Strong family ties to the community reduce family stress and adjustment problems.

3. Neighborhoods
    a. Neighborhood resources have a greater impact on economically disadvantaged than on well-to-do young people because low-SES families are more dependent on their immediate surroundings.
    b. In low-income neighborhoods, in-school and after-school programs that provide enrichment activities can compensate for a lack of other resources.
    c. Family–neighborhood ties reduce parenting stress and promote child development by providing *social support,* the benefits of which include direct assistance with child rearing and access to valuable information and services.
4. Schools
    a. Schools are complex social systems that affect many aspects of development.
    b. Schools differ in the quality of their physical environments, educational philosophies, and social life.
    c. Regular parent–school contact supports children's development at all ages.

G. The Cultural Context (pp. 77–81)
1. Cultural Values and Practices
    a. Cultures shape all aspects of daily life.
    b. The American cultural context reflects the central values of independence, self-reliance, and the privacy of family life.
    c. Some Americans belong to **subcultures,** groups of people who share beliefs and customs different from those of the larger culture.
    d. African Americans have a cultural tradition of **extended-family households,** in which parent and child live with one or more adult relatives.
    e. In **collectivist societies,** people define themselves as part of a group and stress group over individual goals.
    f. In **individualistic societies,** people are largely concerned with their own personal needs. The United States is more individualistic than most Western European countries.
2. Public Policies and Child Development
    a. **Public policies** are laws and government programs designed to improve conditions by responding to current social problems.
    b. U.S. public policies safeguarding children and youths have lagged behind policies in other developed nations. Compared with other Western nations, the United States does not rank well on any key measure of children's health and well-being.
3. Looking Toward the Future
    a. Public policies aimed at fostering children's development can be justified on the grounds that children represent a society's future, as well as on humanitarian grounds—that children have basic rights as human beings.
    b. In the United States, growing awareness of the gap between what we know and what we do to better children's lives has led experts in child development to join with concerned citizens as advocates for more effective policies.

IV. UNDERSTANDING THE RELATIONSHIP BETWEEN HEREDITY AND ENVIRONMENT (pp. 82–88)

A. **Behavioral genetics** is a field devoted to uncovering the contributions of nature and nurture to the great diversity that exists in human traits and abilities.

B. Some investigators focus on the question of *how much each factor contributes* to differences among children, but a growing consensus regards this question as unanswerable and focuses instead on *how nature and nurture work together.*

C. The Question, "How Much?" (pp. 82–84)
1. Heritability
    a. **Heritability estimates** measure the extent to which individual differences in complex traits within a population are due to genetic factors.
    b. Heritability estimates are obtained from **kinship studies,** which compare the characteristics of family members. The most common type of kinship study compares identical twins, who share all their genes, with fraternal genes, who share only some.
    c. Most kinship studies of intelligence support a moderate role for heredity, but findings are controversial.
    d. Heritability research reveals that genetic factors are important in personality.

2. Limitations of Heritability
   a. Serious questions have been raised about the accuracy of heritability estimates.
   b. Results can easily be misapplied to suggest, for example, that ethnic differences in intelligence have a genetic basis.
   c. Heritability estimates do not provide precise information on how intelligence and personality develop or how children might respond to environments designed to help them develop as far as possible.

D. The Question, "How?" (pp. 84–88)
   1. Today, most researchers believe that development is the result of a dynamic interplay between heredity and environment. They focus on *how* nature and nurture work together.
   2. Reaction Range
      a. **Range of reaction** refers to each person's unique, genetically determined response to the environment, accounting for varying responses to the same environment.
      b. Reaction range reveals that unique blends of heredity and environment lead to both similarities and differences in behavior.
   3. Canalization
      a. **Canalization** is the tendency of heredity to restrict development to one or a few potential outcomes, thus ensuring that children will develop certain species-typical skills under a wide range of rearing conditions.
      b. Infant motor and perceptual development seem strongly canalized, but intelligence and personality are less so, varying much more with environmental changes.
   4. Genetic–Environmental Correlation
      a. According to the concept of **genetic–environmental correlation,** our genes influence the environments to which we are exposed.
      b. Passive and Evocative Correlation
         (1) *Passive* correlation is common in young children, who have no control over their environment. Parents provide environments influenced by their own heredity.
         (2) In *evocative* correlation, children behave in ways consistent with their own heredity, evoking responses from others that, in turn, strengthen the child's original style.
      c. Active Correlation
         (1) *Active* correlation is more common at older ages, when children actively seek environments that fit with their genetic tendencies.
         (2) **Niche-picking** is the tendency to actively choose environments that complement our heredity.
   5. Environmental Influences on Gene Expression
      a. Growing evidence reveals that the relationship between heredity and environment is *bidirectional:* Genes affect children's behavior and experiences, but experiences and behavior also affect gene expression.
      b. Stimulation, both *internal* (activity within the cytoplasm of the cell, hormones released into the bloodstream) and *external* (home, neighborhood, school, and society), modifies gene activity.
      c. This view of the relationship between heredity and environment is called the *epigenetic framework.* **Epigenesis** means development resulting from ongoing, bidirectional exchanges between heredity and all levels of environment.
      d. Experimental research with animals confirms that environment can modify the genome in ways that have no impact on a gene's sequence of base pairs, but nevertheless affect the operation of that gene.

LECTURE ENHANCEMENTS

LECTURE ENHANCEMENT 2.1
Psychological Adjustment in Children from Embryo Donation Families (pp. 66–67)

Time: 10–15 minutes

Objective: To provide more information about the psychological adjustment of children from embryo donation families.

Since the first test-tube baby was born in 1978, numerous reproductive techniques have emerged to help infertile couples conceive. In embryo donation, an embryo created by the gametes of one couple is donated to another couple, who then raise the child. Like adopted children, children conceived using donated embryos have a family structure in which the child is not

genetically related to either parent. But do children conceived from donated embryos experience adjustment problems similar to those of adopted children? To find out, MacCallum and Keeley (2008) recruited 69 school-age children—17 from donated embryo families, 24 from adoptive families, and 28 from in vitro families. The researchers collected the following information:

(1) Mothers completed a marital and psychological state rating scale, which measured the quality of the marital relationship, parenting stress, anxiety, and depression.
(2) Mothers were interviewed about their perceptions of the mother–child relationship. For example, using a 4-point scale (0 = little or none; 3 = a great deal), mothers rated their enjoyment in play and age-appropriate leisure activities with the child. Mothers also rated the level of difficulty of daily routines like bedtime, frequency of disputes, intensity of disputes, overall supervision of the child, and enjoyment of motherhood. During the interviews, the researchers coded expressed warmth, such as spontaneous expressions of warmth, sympathy, and concern about the child. Finally, emotional overinvolvement was determined by the extent to which family life was focused on the child, how overprotective or overconcerned the mother was toward the child, and whether the mother had interests or activities not involving the child.
(3) Mothers and teachers completed a rating scale of children's social and emotional development, which measured hyperactivity, conduct problems, emotional difficulties, and peer problems.
(4) Mothers were asked whether they had told their children (or intended to tell them) about their assisted conception or adoption. Mothers' responses were coded into one of four categories—already told child, intending to tell child in the future, undecided about telling child, and definitely decided not to tell child.

Results indicated that children from embryo donation and in vitro families did not differ in overall outcomes. Children from embryo donation families were well-adjusted and did not demonstrate significant emotional or behavioral problems. In contrast, adopted children were more likely than children from embryo donation families to have social and emotional problems, with especially high rates of hyperactivity. According to MacCallum and Keeley, the difference between the two groups is likely due to the prenatal environments of adopted children. Research shows that compared to children living with their biological parents, adopted children are more likely to have experienced prenatal exposure to drugs and/or alcohol, poor maternal nutrition, and inadequate prenatal care.

Another important finding was that the majority of embryo donation families—59 percent—had not informed or were not planning to inform their child of his or her origins. In contrast, 89 percent of the in vitro families either had disclosed or were planning to disclose their child's origins, and all of the adoptive families had informed their child about the adoption. Thus, it seems that embryo donation is an especially private matter for many parents. Maternal overinvolvement was particularly high in embryo donation families, which may reflect a longer period of infertility in these families than in adoptive or in vitro families. When the child finally arrives, mothers may become overly involved in all aspects of the child's life. However, this overinvolvement did not predict social or emotional problems. Finally, maternal warmth and sensitivity were equally high in all three family types.

Ask students to reflect on the decision of many embryo donation families not to disclose their child's origins. Do students agree with this decision? Why or why not? What are some possible pros and cons of informing children?

MacCallum, F., & Keeley, S. (2008). Embryo donation families: A follow-up in middle childhood. *Journal of Family Psychology, 22,* 799–808.

LECTURE ENHANCEMENT 2.2
More on Affluent Youths: Nonsuicidal Self-Injury (pp. 72, 74)

Time: 10–15 minutes

Objective: To examine nonsuicidal self-injury among affluent youths.

As noted in the text, many affluent youths experience serious emotional and behavior problems, such as poor grades, alcohol and drug abuse, and high rates of anxiety and depression. One particularly alarming trend among economically advantaged adolescents is nonsuicidal self-injury (NSSI), which is defined as "self-inflicted, direct, socially unacceptable destruction or alteration of body tissue that occurred in the absence of conscious suicidal intent (for example, self-cutting, burning, or hitting)."

To examine NSSI among affluent youths, including factors that contribute to this behavior, Yates, Tracy, and Luthar (2008) recruited 1,036 high school students from a West Coast suburban community and 245 adolescents who were participating in the New England Study of Suburban Youth, which is a longitudinal study of high-SES suburban school children who are followed from sixth to twelfth grade. The median household income for the West Coast and New England sample were

$111,116 and $125,381, respectively. The majority of the parents for each sample were college-educated, white-collar professionals. The researchers collected the following information:

(1) Participants completed the Multidimensional Perfectionism Scale (MPS), which measures parental criticism. For example, participants were asked to rank the following statements on a scale of 1 to 5 (1 = strongly disagree; 5 = strongly agree): I am punished for doing things less than perfectly. My parents never try to understand my mistakes. I never feel like I can meet my parents' standards.
(2) Participants completed an Alienation subtest, which assesses feelings of alienation toward one's parents, including anger, isolation, and mistrust. For example, participants were asked to rank the following statements on a scale of 1 to 5 (1 = almost never or never true; 5 = almost always or always true): Talking over my problems with my mother/father makes me feel ashamed or foolish. I feel angry with my mother/father.
(3) Participants completed the Functional Assessment of Self-Mutilation (FASM), which assesses rates and methods of self-injurious behavior during the past 12 months. The FASM focuses on 11 forms of self-injury, such as cutting/carving skin, self-hitting, self-biting, inserting objects under the skin or nails, self-tattooing, burning skin, and pulling out hair. Participants were also asked about the frequency of each form of self-injury—0 times, 1 time, 2–5 times, 6–10 times, or more than 11 times.
(4) Participants completed a Rule-Breaking subtest that focuses on a wide range of delinquent behavior, including associating with deviant peers, lying, stealing, and drug and alcohol use.

Results indicated that nearly one-third of the participants engaged in NSSI during the previous 12 months, with approximately three-fourths of these youths reporting multiple incidents. Rates of NSSI among girls were only slightly higher than those of boys. Perceived parental criticism, as well as feelings of alienation toward parents, strongly predicted NSSI in both samples. Not surprisingly, parental criticism and alienation also predicted rule-breaking behavior. According to Yates, Tracy, and Luthar, elevated rates of NSSI among affluent adolescents may reflect increased pressure to contain their emotions and demonstrate superior achievement. Thus, although dangerous and maladaptive, self-injury likely serves an emotion-regulating function—injuries trigger the release of chemicals naturally produced by the body (endogenous opioids) to relieve pain. For adolescents who repeatedly self-injure, this process may become increasingly effective at reducing psychological pain.

Yates, T. M., Tracy, A. J., & Luthar, S. S. (2008). Nonsuicidal self-injury among "privileged" youths: Longitudinal and cross-sectional approaches to developmental process. *Journal of Consulting and Clinical Psychology, 76,* 52–62.

LECTURE ENHANCEMENT 2.3
Do Home and Neighborhood Characteristics Contribute to Children's Participation in Out-of-School Activities? (pp. 69–72, 74–77)

Time: 10–15 minutes

Objective: To examine the influence of home and neighborhood contexts on children's participation in out-of-school activities.

To extend existing research on how home and neighborhood contexts influence child development, Dearing and colleagues (2009) recruited 1,420 elementary school-age children who were participating in The Panel Study of Income Dynamics, Child Development Supplement (PSID-CDS), a longitudinal investigation of children's health, emotional well-being, intellectual development, academic achievement, and relationships with family and peers. The researchers collected the following information:

(1) Parents provided demographic information, including children's age, gender, ethnicity, family size, partner status, employment status, and annual income.
(2) Trained interviewers visited children's homes and completed the Home Observation for Measurement of the Environment (HOME). The HOME focuses on a range of household characteristics, such as quality of parent–child interactions, material resources, presence of children's books, affection toward child, and use of physical punishment.
(3) Using U.S. Census data, the researchers calculated neighborhood affluence using median family income, percentage of residents with a college degree, and percentage of residents in professional or managerial jobs.
(4) The researchers conducted observations of neighborhood safety and orderliness. They focused on the presence of drug-related paraphernalia, condoms, liquor containers, cigarette butts, and discarded cigarette packages in the streets or on the sidewalks.

(5) Parents provided information on their child's participation in nonschool activities during the past year, including before- and after-school programs, community center activities, lessons (e.g., music), church clubs, and summer camps.

Findings indicated that family income strongly predicted children's participation in activities outside school. For example, a child living in a family with an annual income of $20,000 was 2.5 times as likely to participate in nonschool activities than a child living in a family with an annual income of $10,000. Neighborhood characteristics also contributed to participation rates. Children living in affluent, safe, and orderly neighborhoods had greater access to nonschool activities, which predicted higher rates of participation. One exception to this trend was participation in church clubs, with low-income children having higher participation rates than affluent children. This finding is not surprising, as churches tend to be a central source of support for low-income and ethnic minority families. Finally, the quality of the home environment had an indirect effect on children's participation in nonschool activities. Affluent families tended to provide more enrichment, which, in turn, predicted higher participation rates.

These findings support previous research on the importance of home and neighborhood contexts for children's development. Although neighborhood resources tend to have a greater impact on economically disadvantaged than on well-to-do young people, poor children often lack access to growth-enriching activities like before- and after-school programs, formal lessons, and summer camps.

According to the text, how might stronger family–neighborhood ties enhance developmental outcomes for low-income children?

Dearing, E., Wimer, C., Simpkins, S. D., Lund, T., Bouffard, S. M., Caronogan, P., Kreider, H., & Weiss, H. (2009). Do neighborhood and home contexts explain why low-income children miss opportunities to participate in activities outside of school? *Developmental Psychology, 45,* 1545–1562.

LECTURE ENHANCEMENT 2.4
Illustrating Genetic–Environmental Correlation: The Heritability of Life Events (pp. 82–88)

Time: 5–10 minutes

Objective: To extend existing research on genetic–environmental correlation by investigating the heritability of life events.

To extend existing research on genetic–environmental correlation, Bemmels and colleagues (2008) recruited 618 pairs of same-sex adolescent twins, 244 pairs of same-sex adopted adolescent and young adult siblings, and 128 pairs of same-sex biological siblings. Each participant completed the Life Events interview, which measures dependent, familial, and independent life experiences.

- An event was classified as dependent if the participant had control over or inadvertently caused it. For example, Have you failed a course in school? Have you ever had a serious problem with a close friend? Were you ever sent to a juvenile detention facility?
- An event was classified as familial if everyone in the family experienced it but it was independent of the participant's behavior. For example, Are your parents divorced? Has a member of your family killed him or herself? Has your family ever moved to a new neighborhood?
- An event was classified as independent if it was not familial and the participant's behavior did not likely contribute to it. For example, Has your body begun to change or develop due to puberty? Was a close friend of yours ever seriously hurt? Have you ever been mugged or robbed?

Results indicated that individual differences in dependent life events—and only dependent life events—were strongly influenced by genetic factors. That is, compared to same-sex adopted siblings and same-sex biological siblings, identical twins were more likely to report similar stressful events that were influenced by personal actions, such as failing a course, having a serious problem with a close friend, or getting into legal trouble. Consistent with previous research, familial life events were primarily influenced by shared environmental experiences, whereas independent life events were primarily influenced by nonshared environmental experiences. These findings support the notion that events that are random and outside of one's control are not heritable, whereas those in which we have some control are influenced by genetic factors.

Using findings from this study and research in the text, how does niche-picking help explain why identical twin pairs are more likely than adopted and biological siblings to experience similar life events?

Bemmels, H. R., Burt, S. A., Legrand, L. N., Iacono, W. G., & McGue, M. (2008). The heritability of life events: An adolescent twin and adoption study. *Twin Research and Human Genetics, 11,* 257–265.

LEARNING ACTIVITIES

LEARNING ACTIVITY 2.1
Observing Similarities and Differences in Phenotypes Among Family Members (pp. 51–53)

Have students jot down the most obvious similarities in physical characteristics and behavior for several children and parents whom they know well (for example, height, weight, eye and hair color, personality, interests, hobbies). Did they find that one child shows combined features of both parents, another resembles just one parent, or another is unlike either parent?

Next, ask students to trace a visible genetic trait (phenotype), such as hair or eye color, through as many of their family members as possible. When the genetic family tree is complete, try to determine genotypes. Note that you must begin with the most recent generation and work back. Also note that inferences must be made because homozygosity and heterozygosity cannot be determined for some dominant traits. For example, it may not be known whether someone is homozygous for dark hair or heterozygous—that is, a genetic makeup consisting of a dominant dark-hair and a recessive light-hair gene. Have students explain how differences among family members in the first activity may have occurred. Integrate the terms *phenotype, genotype, meiosis,* and *crossing over* into the discussion.

LEARNING ACTIVITY 2.2
Demonstrating Environmental Influence by Comparing Identical Twins (p. 55)

As discussed in the text, identical, or monozygotic, twins have the same genetic makeup—that is, they are genetically identical clones. Phenotypic variation of identical twins is perhaps the best evidence of the extent to which environmental influences can modify genetic expression. To demonstrate, invite a pair of identical twins (who are friends or relatives of a class member) to join your class for observation and interviews. Before the visit, have students generate a list of questions that they would like to ask each twin. These questions should be based on attributes or abilities that are thought to have a strong genetic component. For example, students may want to ask each twin questions about IQ, personality, interests, and talents. Students should also note any physical differences between the twins (for example, height, weight, handedness). After the visit, engage students in a discussion about similarities and differences among the twins, including how the environment may have contributed to differences.

LEARNING ACTIVITY 2.3
Identifying Dominant and Recessive Characteristics (p. 56)

Present the following exercise as an in-class activity or quiz.

Directions: Read each of the following sentences and indicate whether the individual has *dominant* (D) or *recessive* (R) characteristics.

_____ 1. Joe has Type A blood.
_____ 2. Raul is farsighted.
_____ 3. Megan has blond hair.
_____ 4. Jamar is double-jointed.
_____ 5. Eva has Type O blood.
_____ 6. Coral has straight hair.
_____ 7. Indria has facial dimples.
_____ 8. Grace is nearsighted.
_____ 9. Vinny has albinism.
_____ 10. Yan has Rh-positive blood.

Answers:

1. D
2. D
3. R
4. D
5. R
6. R
7. D
8. R
9. R
10. D

LEARNING ACTIVITY 2.4
Matching: Patterns of Genetic Inheritance (pp. 56–60)

To help students better understand patterns of genetic inheritance, present the following exercise as an in-class activity or quiz.

Directions: Match each of the following terms with its definition.

_____ 1. Allele
_____ 2. Homozygous
_____ 3. Heterozygous
_____ 4. Dominant–recessive inheritance
_____ 5. Carriers
_____ 6. Incomplete dominance
_____ 7. X-linked inheritance
_____ 8. Genomic imprinting
_____ 9. Mutation
_____ 10. Polygenic inheritance

Definitions:

A. Traits in which many genes influence the characteristics in question.
B. Alleles are imprinted, or chemically marked, in such a way that one member of the pair is activated, regardless of its makeup.
C. Refers to each form of a gene.
D. When heterozygous individuals with just one recessive allele can pass that trait to their children.
E. A pattern of inheritance in which both alleles are expressed, resulting in a combined trait, or one that is intermediate between the two.
F. If the alleles from both parents are alike, the child will display the inherited trait.
G. In many heterozygous pairings, only one allele affects the child's characteristics. It is called *dominant*; the second allele, which has no effect, is called *recessive*.
H. A sudden change in a segment of DNA.
I. If the alleles differ, the relationships between the alleles determine the trait that will appear.
J. When a harmful allele is carried on the X chromosome.

Answers:

1. C
2. F
3. I
4. G
5. D
6. E
7. J
8. B
9. H
10. A

LEARNING ACTIVITY 2.5
More on the Human Genome Project (p. 64)

The Human Genome Project has identified thousands of genes, including those involved in hundreds of diseases. To extend the text discussion of the Human Genome Project, have students visit the website *www.ornl.gov/sci/techresources/Human_Genome/home.shtml,* which provides current research; progress in DNA sequence mapping; and ethical, legal, and social concerns. Have students read one or two current research studies and summarize the findings. What are the benefits of the Human Genome Project? What are some ethical and legal concerns? How do students feel about genetic research?

LEARNING ACTIVITY 2.6
True or False: The Pros and Cons of Reproductive Technology (pp. 66–67)

Present the following exercise as an in-class activity or quiz.

Directions: Read each of the following statements and determine if it is *True* (T) or *False* (F).

_____ 1. One-fourth of all couples who try to conceive discover that they are infertile.
_____ 2. Donor insemination is 30 to 40 percent successful.
_____ 3. About 1 percent of all children in developed countries are conceived through in vitro fertilization.
_____ 4. In vitro fertilization can only be used to overcome female fertility problems.
_____ 5. A "sex sorter" method of in vitro fertilization helps ensure that couples who carry X-linked diseases have a daughter.
_____ 6. In vitro fertilization is as safe as natural conception to infant survival and healthy development.
_____ 7. Because surrogacy favors the wealthy as contractors for infants and the less economically advantaged as surrogates, it may promote exploitation of financially needy women.
_____ 8. Most recipients of in vitro fertilization are in their fifties and sixties.
_____ 9. Several European countries have successfully created "designer babies"—controlling offspring traits by manipulating genetic makeup.
_____ 10. At present, nothing is known about the psychological consequences of being a product of reproductive technologies.

Answers:

1. F
2. F
3. T
4. F
5. T
6. F
7. T
8. F
9. F
10. T

LEARNING ACTIVITY 2.7
Conducting a Survey of Attitudes Toward Government Intervention Into Family Life (p. 78)

Have students interview two or three family members, friends, or acquaintances, and ask the following questions:

(1) Who should be responsible for raising young children?
(2) Should the government provide money and resources to low-income families with young children? If so, should the money come from tax dollars?

When students return to class with their responses, instruct them to classify each answer on the basis of whether parents are viewed as solely responsible for children's upbringing or whether society should play an important role. Compile the findings and discuss them in relation to evidence that government support for children and families has been more difficult to realize in the United States and Canada than in other industrialized nations. How do students feel about their findings? Do they agree with the findings? Why or why not?

LEARNING ACTIVITY 2.8
Researching Social Indicators of Children's Well-Being in the United States (pp. 78–81)

Although the United States is one of the wealthiest nations in the world, it does not rank among the top countries on any measure of children's health and well-being. Direct students to a website sponsored by the Children's Defense Fund: *www.childrensdefense.org*. By clicking on "U.S. State Child Data" under the "Child Research Data & Publications" heading, students can find out their state's ranking on several leading social indicators of children's well-being. If students are not from the United States, they can choose a state to research.

Using information from the website, have students answer the following questions: How are cultural values, special interests, and economic conditions reflected in these policies? Do you think that these policies reflect current research in the field of child development? How large is the gap between what we know and its application to public policy?

LEARNING ACTIVITY 2.9
Exploring Epigenesis (pp. 86–88)

Have students review the definition and example of epigenesis on page 86 of the text. Next, ask them to form small groups and create two scenarios—one that would likely enhance gene expression and one that would likely dampen gene expression. For example, providing an economically at-risk preschooler with intensive early intervention promotes cognitive and social and emotional growth, which translates into better academic performance and peer relations on entering school, thereby transforming gene expression. In contrast, not providing the same preschooler with early intervention and denying him or her appropriate environmental stimulation can dampen gene expression so severely that later intervention has little impact. As this example illustrates, environment–gene exchanges can contribute to vastly different outcomes in the same child.

ASK YOURSELF . . .

REVIEW: Cite evidence indicating that both heredity and environment contribute to the development of children with PKU and Down syndrome. (pp. 56, 60–61)

In phenylketonuria, or PKU, one of the most frequently occurring recessive disorders, infants born with two recessive alleles lack an enzyme that converts one of the basic amino acids that make up proteins (phenylalanine) into a byproduct essential for body functioning (tyrosine). Without this enzyme, phenylalanine quickly builds to toxic levels that damage the central nervous system. By 1 year, infants with PKU are permanently mentally retarded. But despite its potentially damaging effects, PKU provides an illustration of the fact that inheriting unfavorable genes does not always lead to an untreatable condition. Newborns diagnosed with PKU and placed on a diet low in phenylalanine usually attain an average level of intelligence and have a normal lifespan, although they still show mild cognitive deficits.

Down syndrome, the most common chromosomal disorder, occurs in 1 out of every 770 live births. In 95 percent of cases, it results from a failure of the twenty-first pair of chromosomes to separate during meiosis. As a result, the new individual inherits three of these chromosomes rather than the normal two. In other, less frequent forms, an extra broken piece of a twenty-first chromosome is attached to part of another chromosome. Or an error occurs during the early stages of mitosis, causing some but not all body cells to have the defective chromosomal makeup.

The consequences of Down syndrome include mental retardation and other cognitive problems, slow motor development, and distinct physical abnormalities. But environment plays a role in the development of affected children. Children with Down syndrome develop most favorably when their parents encourage them to become interested in their surroundings. They also benefit from infant and preschool intervention programs, although emotional, social, and motor skills improve more than intellectual performance.

In sum, although both PKU and Down syndrome are due to heredity, environmental factors affect how well these children fare.

REVIEW: Using your knowledge of X-linked inheritance, explain why males are more vulnerable than females to miscarriage, infant death, genetic disorders, and other problems. (pp. 57, 59)

When a harmful allele is carried on the X chromosome, *X-linked inheritance* applies. Males are more likely to be affected because their sex chromosomes do not match. In females, any recessive allele on one X chromosome has a good chance of being suppressed by a dominant allele on the other X. But the Y chromosome is only about one-third as long and therefore lacks many corresponding alleles to override those on the X.

Besides X-linked disorders, many sex differences reveal the male to be at a disadvantage. Rates of miscarriage, infant and childhood deaths, birth defects, learning disabilities, behavior disorders, and mental retardation all are higher for boys. It is possible that these sex differences can be traced to the genetic code. The female, with two X chromosomes, benefits from a greater variety of genes.

APPLY: Gilbert's genetic makeup is homozygous for dark hair. Jan's is homozygous for blond hair. What color is Gilbert's hair? How about Jan's? What proportion of their children is likely to be dark-haired? Explain. (p. 56)

Because homozygous individuals inherit similar alleles from both parents, they will always display the inherited trait. As a result, Gilbert will have dark hair, while Jan will have blond hair. Because Gilbert can pass on only the dominant dark-hair gene, all of Gilbert and Jan's children will have dark hair. However, because their children will also receive the recessive blond-hair allele from Jan, all of them will be *heterozygous*—carriers of the gene for blond hair, which they can pass on to their own children.

CONNECT: Referring to ecological systems theory (see Chapter 1, pages 25–27), explain why parents of children with genetic disorders often experience increased stress. What factors, within and beyond the family, can help these parents support their children's development? (pp. 60–61)

Ecological systems theory views the child as developing within a complex system of relationships affected by multiple levels of the surrounding environment. Caring for a disabled child can be expensive, exhausting, and stressful for parents. For example, infants with Down syndrome are more difficult to care for than normal infants. They smile less readily, show poorer eye-to-eye contact, have weak muscle tone, and explore objects less persistently than typical children. However, when parents take extra steps to encourage them to engage with their surroundings, children with Down syndrome develop more favorably. From the viewpoint of ecological systems theory, factors in the mesosystem—for example, the availability of specialized infant and preschool intervention programs—can help these parents support their children's development, both by providing experiences that promote the child's physical and cognitive development and by relieving the parent of the sole burden of caring for the child.

REVIEW: Why is genetic counseling called a *communication process?* Who should seek it? (p. 63)

Genetic counseling is called a communication process because the counselor provides information that can help couples assess their chances of giving birth to a baby with a hereditary disorder and then choose the best course of action in view of risks and family goals. If a family history of mental retardation, physical defects, or inherited diseases exists, the genetic counselor interviews the couple and prepares a *pedigree,* a picture of the family tree that identifies affected relatives, which is used to estimate the likelihood that parents will have an abnormal child, based on genetic principles. For many disorders, blood tests or genetic analyses can reveal whether the parent is a carrier of the harmful gene. Once all the relevant information has been gathered, the genetic counselor helps the prospective parents consider appropriate options and explore the possible consequences of each.

Individuals likely to seek counseling are those who have had difficulties bearing children—for example, repeated miscarriages—or who know that genetic problems exist in their families. Women who delay childbearing past age 35, the age at which the overall rate of chromosomal abnormalities rises sharply, are also candidates for genetic counseling.

APPLY: Imagine that you must counsel a couple considering in vitro fertilization using the wife's ova and sperm from an anonymous man to overcome the husband's infertility. What medical and ethical risks would you raise? (pp. 66–67)

The couple should be told that in vitro fertilization poses greater risks than natural conception to infant survival and healthy development. About 50 percent of in vitro procedures result in multiple births. Most are twins, but 9 percent are triplets and higher-order multiples. As a result, the rate of low birth weight among in vitro babies is nearly three times as high as in the general population. Risk of major birth defects also doubles because of many factors, including drugs used to induce ripening of ova and delays in fertilizing the ova outside the womb.

Further, the couple should be told that the success rate of in vitro fertilization declines steadily with age, from about 40 percent in women younger than age 35 to only 8 percent in women age 43 and older. In many countries, including the United States, doctors are not required to keep records of donor characteristics, so information about the child's genetic background may not be available in the case of serious illness.

Finally, they should be made aware of the serious ethical concerns surrounding the in vitro "sex sorter" method, which may encourage parental sex selection, eroding the moral value that children of both sexes are equally precious.

CONNECT: How does research on adoption reveal resilience? Which factor related to resilience (see Chapter 1, pages 10–11) is central in positive outcomes for adoptees? (pp. 65–68)

Research shows that adopted children and adolescents tend to have more learning and emotional difficulties than other children. But despite the risks, most adopted children fare well, and those with preexisting problems usually make rapid progress. For example, in a study of internationally adopted children in the Netherlands, sensitive maternal care and secure attachment in infancy predicted cognitive and social competence at age 7. Further, international adoptees fare much better in development than birth siblings or institutionalized agemates who are not adopted. And although later-adopted children, especially those with multiple early-life adversities, are more likely than their agemates to have persistent cognitive, emotional, and social problems, when these children feel loved and supported in their new families, they develop feelings of trust and affection for their adoptive parents.

REFLECT: Imagine that you are a woman who is a carrier of fragile X syndrome but who wants to have children. Would you become pregnant, adopt, use a surrogate mother, or give up your desire for parenthood? If you became pregnant, would you opt for prenatal diagnosis? Explain your decisions. (pp. 63–68)

This is an open-ended question with no right or wrong answer.

REVIEW: Links between family and community are essential for children's well-being. Provide examples and research findings from our discussion that support this idea. (pp. 74, 75–77)

Connections between family and community are vital for children's well-being. For example, research shows that in poverty-stricken urban areas, community life is usually disrupted. Families move often, parks and playgrounds are in disarray, and community centers providing leisure time activities do not exist. In such neighborhoods, family violence, child abuse and neglect, children's problem behavior, youth antisocial activity, and adult criminal behavior are especially high. Informal social supports, such as the presence of adults who can intervene when they see young people behaving antisocially, may be absent. In contrast, strong family ties to the community—as indicated by frequent contact with friends and relatives, organized youth activities, and regular church, synagogue, or mosque attendance—reduce family stress and enhance adjustment.

APPLY: Check your local newspaper or one or two national news magazines or news websites to see how often articles on the condition of children and families appear. Why is it important for researchers to communicate with the general public about children's needs? (pp. 78–81)

When widespread social problems arise, such as poverty, homelessness, hunger, and disease, nations attempt to solve them by developing *public policies*—laws and government programs designed to improve current conditions. Growing awareness of the gap between what we know and what we do to better children's lives has led experts in child development to join with concerned citizens as advocates for more effective policies.

Besides strong advocacy, public policies that enhance child development depend on policy-relevant research that documents needs and evaluates programs to spark improvements. By collaborating with community and government agencies, researchers can enhance the social relevance of their investigations. And by disseminating their findings to the public in easily understandable, compelling ways—through television documentaries, newspaper stories, magazine articles, websites, and direct reports to government officials—researchers can help create a sense of immediacy about the condition of children and families that is necessary to spur a society into action by mobilizing voters to demand action from their lawmakers.

CONNECT: How does poverty affect the functioning of the family system, placing all aspects of development at risk? (pp. 74–75)

Poverty is accompanied by constant stresses that gradually weaken the family system. Poor families have many daily hassles—bills to pay, the car breaking down, loss of welfare and unemployment payments, something stolen from the house, to name just a few. When daily crises arise, parents become depressed, irritable, and distracted, hostile interactions increase, and children's development suffers. Negative outcomes are especially severe in single-parent families and families who must live in poor housing and dangerous neighborhoods—conditions that make everyday existence even more difficult while reducing social supports that assist in coping with economic hardship.

Besides poverty, another problem that places the development of children and families at risk is homelessness, which has become more common in the past 30 years. Most homeless families consist of women with children under age 5. Besides health problems (which affect the majority of homeless people), many homeless children suffer from developmental delays and chronic emotional stress due to their harsh, insecure daily lives. An estimated 25 to 30 percent of those who are old enough do not attend school, and those who do enroll achieve less well than other poverty-stricken children because of poor attendance and severe health and emotional difficulties.

REFLECT: Do you agree with the widespread American sentiment that government should not become involved in family life? Explain. (p. 78)

This is an open-ended question with no right or wrong answer.

REVIEW: What is epigenesis, and how does it differ from range of reaction and genetic–environmental correlation? Provide an example of epigenesis. (pp. 84–86, 88)

Epigenesis means development resulting from ongoing, bidirectional exchanges between heredity and all levels of the environment. For instance, providing a baby with a healthy diet promotes brain growth, leading to new connections between nerve cells, which transform gene expression. This opens the door to new gene–environment exchanges—for example, advanced exploration of objects and interaction with caregivers, which further enhance brain growth and gene expression. These ongoing bidirectional influences foster cognitive and social development.

Although range of reaction and genetic–environmental correlation also emphasize the relationship between heredity and environment, both grant priority to heredity. *Range of reaction* refers to each person's unique, genetically determined response to the environment. According to the concept of *genetic–environmental correlation,* our genes influence the environments to which we are exposed. Many researchers view it as *driven* by genetics, in that children's genetic makeup causes them to receive, evoke, or seek experiences that actualize their inborn tendencies.

In contrast, the concept of epigenesis does not give priority to either heredity or environment. As accumulating evidence reveals that the relationship between heredity and environment, like other system influences, is bidirectional, epigenesis reminds us that development is best understood as a series of complex exchanges between nature and nurture.

APPLY: Bianca's parents are accomplished musicians. At age 4, Bianca began taking piano lessons. By age 10, she was accompanying the school choir. At age 14, she asked if she could attend a special music high school. Explain how genetic–environmental correlation promoted Bianca's talent. (pp. 85–86, 88)

According to the concept of *genetic–environmental correlation,* our genes influence the environments to which we are exposed. Early in her development, Bianca probably experienced *passive* genetic–environmental correlation. Her parents, as dedicated musicians, exposed her to musical activities, such as attending concerts and listening to classical music. They also provided her first piano lessons and opportunities for other music-related experiences. Because Bianca was receptive to this abundance of musical stimulation, she undoubtedly evoked positive responses from her parents, who continued to promote her musical development—an example of *evocative* genetic–environmental correlation.

As Bianca grew older, she became more active in choosing her own environments. She decided to accompany the school choir and later to attend a special music high school. Bianca's inherited musical talent led her to engage in *niche-picking,* in which she selected activities that complemented her heredity. In these ways, heredity and environment worked together to advance Bianca's musical endeavors.

CONNECT: Explain how each of the following concepts supports the conclusion that genetic influences on human characteristics are not constant but change over time: somatic mutation (page 60), niche-picking (page 85), and epigenesis. (pp. 86, 88)

Somatic mutation occurs when normal body cells mutate, as happens in many cancers and other diseases. Unlike germline mutation, which occurs only in the cells that give rise to gametes, somatic mutation can take place at any time of life, perhaps reflecting a genetic susceptibility in some individuals that causes body cells to mutate easily in the presence of triggering events. Somatic mutation provides evidence that individuals do not have a single, permanent genotype but, rather, that each cell's genetic makeup can change over time.

Niche-picking is the tendency to actively choose environments that complement our heredity. It is not seen in infants and young children, who cannot choose their own environments. But older children and adolescents, who are increasingly in charge of their environments, can express their preferences through niche-picking. This explains why pairs of identical twins reared apart during childhood and later reunited often discover that they share preferences in food, hobbies, and vocations.

Epigenesis means development resulting from ongoing bidirectional exchanges between heredity and all levels of the environment. For example, providing a baby with a healthy diet promotes brain growth, leading to new connections between brain cells, which transform gene expression. This opens the door to new gene–environment exchanges, which in turn further enhance brain growth and gene expression.

REFLECT: What aspects of your own development—for example, interests, hobbies, college major, or vocational choice—are probably due to niche-picking? Explain. (pp. 85–86)

This is an open-ended question with no right or wrong answer.

SUGGESTED READINGS

Lindsey, D. (2008). *Future of children: Wealth, poverty, and opportunity in America.* New York: Oxford University Press. Presents an overview of child and family poverty in the United States, including historical trends, racial and ethnic differences, and the role of public policy in child development.

Mundy, L. (2008). *Everything conceivable: How assisted reproduction is changing men, women, and the world.* New York: Knopf. A compelling look at reproductive technologies, this book examines current research, as well as controversies, surrounding assisted reproduction. The author also includes personal narratives, myths, and the social consequences of assisted reproduction.

Segal, N. L. (2007). *Indivisible by two: Lives of extraordinary twins.* Cambridge, MA: Harvard University Press. A fascinating look into the lives of multiples, this book follows 12 sets of twins, triplets, and quadruplets. The author not only describes the unique experiences of multiples, but she also highlights the many challenges faced by the parents, friends, and spouses of these extraordinary individuals.

MEDIA MATERIALS

For details on individual video segments that accompany the DVDs for *Infants, Children, and Adolescents*, Seventh Edition, please see the DVD *Guide for Explorations in Child Development*. The DVD and DVD *Guide* are available through your Pearson sales representative.

Additional DVDs and videotapes that may be useful in your class are listed below. They are not available through your Pearson sales representative, but you can order them directly from the distributor. (See contact information at the end of this manual.)

Africa's Children: Kenyan Women in Transition (2000, Films Media Group, 58 min.). This program explores the pressures on female adolescents in the Third World through the stories of four young Kenyan women growing up in a time of cultural upheaval: Christine, a Masai who escaped an arranged marriage so she could study law; Dekha, brought up in a rigidly patriarchal Muslim town, who aspires to be a doctor; Anastasia, who works on her family's farm while yearning to become a Catholic nun; and Mboone, who dreams of exchanging her affluent urban lifestyle for a career of service in the U.N., to help improve the lives of women all over the world.

All in One Basket (2006, Fanlight Productions/Lauren Berliner, 22 min.). This program follows three women through the process of paid egg donation and explores ethical questions about the use of hormones, genetic selection for preferred physical traits, the role of money in reproductive medicine, and informed consent.

Genes on Trial: Genetics, Behavior, and the Law (2003, Films Media Group, 57 min.). This Fred Friendly Seminar examines controversies that can arise when a health problem occurs within a specific demographic, ethnic, or racial group. Although medical researchers have a golden opportunity to screen for genetic markers that could lead to a cure, what if the research stigmatizes those who suffer from the condition? Narrated by Harvard Law School's Charles Ogletree, this film scrutinizes the social, ethical, and legal issues related to genetic research on alcohol addiction. Recognized in the 2004 *Science Books & Films* Best Science Videos of the past five years.

Heredity and Environment (2005, Magna Systems, 29 min.). This program provides a biological explanation of conception, as well as information on a variety of related topics, including the role of genes, dominant and recessive traits, chromosomal abnormalities, genetic disorders, interactions between nature and nurture, and how the environment shapes the brain.

I Am Dekel: Portrait of a Life with Down Syndrome (2000, Films Media Group, 29 min.; Hebrew with English subtitles). Dekel Shekarzi, a 21-year-old who defines himself as an actor, a poet, a dancer, and a romantic, was born with Down syndrome. This documentary follows Dekel in his everyday life, showing him on stage and at home. Included are candid interviews with family members and Dekel's philosophical reflections about his life.

Making Better Babies: Genetics & Reproduction (2003, Films Media Group, 58 min.). Moderated by *Dateline NBC* correspondent John Hockenberry, this Fred Friendly Seminar addresses the ethical dilemmas surrounding prenatal testing and genetic options (e.g., cloning) that may be available in the near future. Recognized in the 2004 *Science Books & Films* Best Science Videos of the Past Five Years.

Perspectives on the Family (2007, Insight Media, 30 min.). This DVD examines theoretical models used to study families, including ecological theory, structural-functional theory, the feminist perspective, the family life-course development perspective, and family systems theory.

Predictor: Genetic Screening (2002, Films Media Group, 50 min., Part 2 of the BBC series *How to Build a Human: Genetic Science in the 21st Century*). Looking at the kind of information yielded by genetic screening, this film explores the extent to which genes determine human behavior. In it, a woman discovers that a single letter change in the genome is responsible for the deformed hands that have appeared in generations of her family, and a London doctor screens the DNA of army recruits for the ACE, or endurance gene, which might affect their longevity and their basic training.

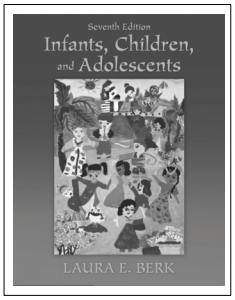
The Beginnings: Fertility (2003, Insight Media, 28 min.). This program features three families who are coping with infertility. It explores in vitro fertilization, adoption, and surrogate motherhood.

The Ghost in Your Genes (2005, Films Media Group/ BBCW production, 50 min.). This program examines the emerging science of epigenetics, which studies the relationship between the environment and the expression of genes. With commentary from leading scientists in the field—including geneticist Marcus Pembrey, among the first to observe that dietary stress can produce health problems two generations after it occurs—the program explores a wide variety of clinical evidence for epigenetic inheritance, including an experiment focusing on children born shortly after 9/11.

The Secret Life of Twins: Identity, Genetics, and Human Development (2009, Films Media Group, A BBC/TLC coproduction, 2-part series, 50 min. each). This series shows how the characteristics of monozygotic twins—their similarities as well as their differences—are creating new avenues of research in medicine, genetics, and psychology. Viewers meet monozygotic twins raised apart and finally reunited, another pair who suffered identical illnesses at the same time, and two brothers setting out to discover if their shared genes mean they will be identical forever. Also presented are case studies that look at gay and straight identical twin brothers, obese and slender twin sisters, and another pair of sisters who seem to have aged at dramatically different speeds.

Waiting on the World to Change: Poverty in Camden, New Jersey (2007, Films Media Groups, 42 min.). This *ABC News* program documents the lives of three young residents of Camden, New Jersey, one of the most economically depressed and crime-ridden cities in America. Viewers meet six-year-old Moochie, who has vowed to get straight A's in school; Billy Joe, a teenager determined to be the first in his family to graduate from high school; and a four-year-old named Ivan with one big dream: to escape homelessness and have his own room. Part of the series *Camden Chronicles: Children in Urban Poverty.*

Infants, Children, and Adolescents



Chapter 2

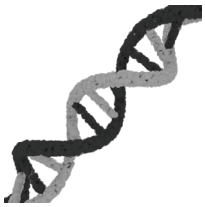
Genetic and Environmental Foundations

Genetic Foundations

Chromosomes – store and transmit genetic information.

Genes – segments of DNA located along the chromosomes

DNA – substance of which genes and chromosomes are made



DNA's Ladderlike Structure

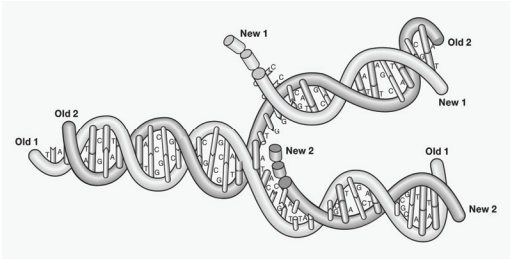


Figure 2.2

Meiosis

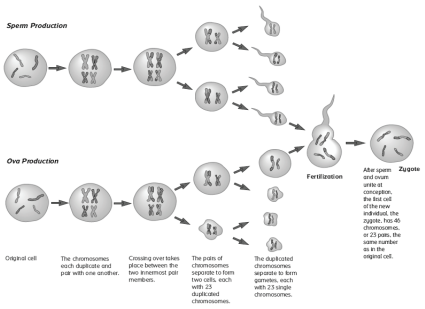


Figure 2.3

Twins

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Fraternal/Dizygotic – two zygotes, or fertilized ova

Identical/Monozygotic – one zygote that divides into two individuals

Maternal Factors Related to Fraternal Twinning

FACTOR	DESCRIPTION
Ethnicity	Occurs in 4 per 1,000 births among Asians, 8 per 1,000 births among whites, 12 to 16 per 1,000 births among blacks
Family History of Twinning	Occurs more often among women whose mothers and sisters gave birth to fraternal twins
Age	Rises with maternal age, peaking between 35 and 39 years, and then rapidly falls
Nutrition	Occurs less often among women with poor diets; occurs more often among women who are tall and overweight or of normal weight as opposed to slight body build
Number of Births	Is more likely with each additional birth
Fertility drugs/ In vitro fertilization	Is more likely with fertility hormones and in vitro fertilization, which also increase the chances of bearing triplets, quadruplets, or quintuplets

Table 2.1
Sources: Hall, 2003; Hoekstra et al., 2008; Lashley, 2007.

Examples of Dominant and Recessive Characteristics

DOMINANT	RECESSIVE
Dark hair	Blond hair
Normal hair	Pattern baldness
Curly hair	Straight hair
Nonred hair	Red hair
Facial dimples	No dimples
Normal hearing	Some forms of deafness
Normal vision	Nearsightedness
Farsightedness	Normal vision
Normal vision	Congenital eye cataracts
Normally pigmented skin	Albinism
Double-jointedness	Normal joints
Type A blood	Type O blood
Type B blood	Type O blood
Rh-positive blood	Rh-negative blood

Table 2.2
Source: McKusick, 2007.

Dominant-Recessive Inheritance

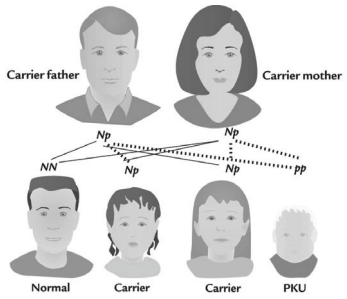


Figure 2.4

X-Linked Inheritance

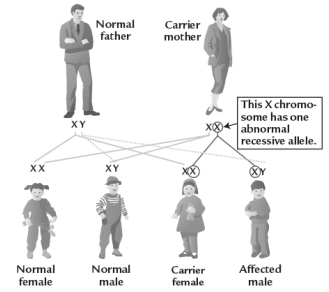


Figure 2.5

Nature's Adjustment to X-Linked Inheritance

- About 106 boys are born for every 100 girls, worldwide.
- In recent decades, the proportion of male births has declined in many industrialized countries, which many researchers attribute to a rise in stressful living conditions.

Genomic Imprinting and Mutation

Imprinting

- Chemical marker that activates either father's or mother's gene
- Often temporary

Mutation

- Sudden, permanent change in a DNA segment

Mutation

Somatic Mutation:

- Normal body cells mutate, an event that can happen at any time in life.
- The DNA defect can eventually become widespread enough to cause disease or disability.

Germline Mutation:

- Takes place in the cells that give rise to gametes
- Defective DNA is passed on to the next generation.

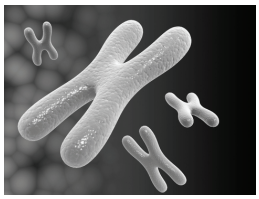
Chromosomal Abnormalities

Down syndrome

- Results from problems with the 21st chromosome

Sex chromosome abnormalities

- Problems with the X or Y chromosomes



Risk of Down Syndrome and All Chromosomal Abnormalities by Maternal Age

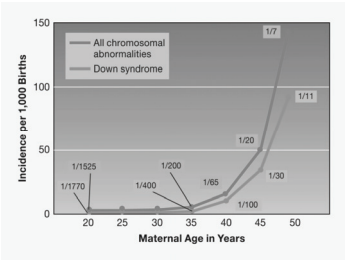


Figure 2.6

Sex Chromosomal Disorders

DISORDER	DESCRIPTION	INCIDENCE	TREATMENT
XYY syndrome	Extra Y chromosome. Above-average height, large teeth, and sometimes severe acne. Intelligence, male sexual development, and fertility are normal.	1 in 1,000 male births	No special treatment necessary.
Triple X syndrome (XXX)	Extra X chromosome. Tallness and impaired verbal intelligence. Female sexual development and fertility are normal.	1 in 500 to 1,250 female births	Special education to treat verbal ability problems.
Klinefelter syndrome (XXY)	Extra X chromosome. Tallness, body fat distribution resembling females, incomplete development of sex characteristics at puberty, sterility, and impaired verbal intelligence.	1 in 900 male births	Hormone therapy at puberty to stimulate development of sex characteristics; special education to treat verbal ability problems.
Turner syndrome (XO)	Missing X chromosome. Short stature, webbed neck, incomplete development of sex characteristics at puberty, sterility, and impaired spatial intelligence.	1 in 2,500 to 8,000 female births	Hormone therapy in childhood to stimulate physical growth and at puberty to promote development of sex characteristics; special education to treat spatial ability problems.

Table 2.4
Sources: Geerts, Steyaert, & Fryns, 2003; Kesler, 2007; Saitta & Zackai, 2005; Simpson et al., 2003.

Reproductive Choices

Genetic counseling helps couples assess risks and family goals related to hereditary disorders.

Options:

- Conception knowing risks
- Reproductive technologies
- Adoption

Prenatal Diagnostic Methods

- Amniocentesis
- Chorionic villus sampling
- Fetoscopy
- Ultrasound
- Maternal blood analysis
- Preimplantation genetic diagnosis

Fetal Medicine

- Drugs delivered into uterus
- Surgery
- Bone marrow transplants
- Genetic engineering
- Gene therapy

Genetic Engineering

Human Genome Project

- Researchers have mapped the sequence of all human DNA base pairs.
- Working on identifying all genes and their functions, in order to understand human disorders
- Thousands of genes already identified, including those involved in cystic fibrosis, Duchenne muscular dystrophy, Huntington disease, and many forms of cancer

New treatments under development include gene therapy and *proteomics*.

The Alternative of Adoption

- Adopted children tend to have more learning and emotional difficulties than other children.
- The child's age at adoption correlates to learning and emotional difficulties experienced.
- Most adopted children eventually fare well.

Reproductive Technologies

- Donor insemination and in vitro fertilization
- Surrogate motherhood
- New frontiers in reproductive technology
  - Ethical concerns

Environmental Contexts for Development

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- Family
- Socioeconomic status
- Neighborhoods
- Towns and cities
- Cultural context

Family Influences on Development

Direct

- Two-person relationships

Indirect

- Third parties

Adapting to Change

- Changes from within and outside the family

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Socioeconomic Status and Family Functioning

- Timing of family life cycle
- Values and expectations
- Father's involvement
- Communication and discipline styles
- Children's cognitive development

Worldwide Education of Girls

- 73 million children in the world, mostly poverty-stricken girls, receive no education at all.
- Providing education benefits to girls by providing them with enhanced verbal skills and the empowerment to improve their life
- Also improves:
  - Family health
  - Family relationships and parenting
- According to the United Nations, educating girls is **the most effective** means of combating poverty, maternal and child mortality, and disease.

Affluence

- Many affluent parents are not physically and emotionally available for their children.
- These parents often make excessive demands for achievement.
- Adolescents whose parents value achievement over character often have academic and emotional problems.

Eating Dinner Together Can Make a Difference

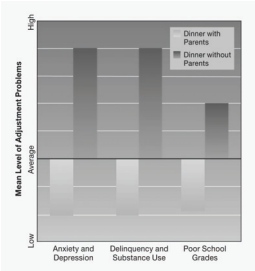

Figure 2.8

How Does the United States Fare on Measures of Children's Health and Well-Being?

INDICATOR	U.S. Rank
Childhood poverty (among 25 industrialized nations considered)	25th
Infant deaths in first year (worldwide)	28th
Teenage pregnancy rate (among 28 industrialized nations considered)	28th
Public expenditure on education as a percentage of gross domestic product (among 22 industrialized nations considered)	12th
Public expenditure on early childhood education and child care as a percentage of gross domestic product (among 14 industrialized nations considered)	9th
Public expenditure on health as a percentage of total health expenditure, public plus private (among 29 industrialized nations considered)	29th

Table 2.6
Sources: Canada Campaign 2000, 2009; OECD, 2006, 2008a, 2008b; UNICEF, 2007; U.S. Census Bureau, 2010; U.S. Department of Education, 2009.

Neighborhoods and Schools

Neighborhoods offer resources and social ties that play an important part in children's development.

- Higher-SES families are less dependent on their immediate surroundings than are low-SES families.
- Social ties linking families together break down in areas with unemployment, crime, and population turnover.

Children spend an average of 14,000 hours in school by high school graduation.

- Parent–school contact supports development at all ages.

The Cultural Context

- Culture shapes every aspect of daily life.
- Different cultures have different values; North American culture values the independence, self-reliance, and privacy of the family.
- Subcultures
- Extended-family households

The African-American Extended Family

- Today, more black than white adults have relatives other than their own children living in the same household.
- The extended-family system provides emotional support and the sharing of resources, and helps reduce the stress of poverty and single parenthood.
- These arrangements also place a high value on cooperation and moral and religious values.

Individualist and Collectivist Societies

Individualist

- People think of themselves as separate from others.
- Concerned with personal goals

Collectivist

- People define themselves as part of a group.
- Concerned with group goals over individual goals

Public Policy Shortcomings

- Children without health insurance
- Substandard child care
- Poor vocational preparation
- High-school dropouts

Children's Rights

1989 Convention on the Rights of the Child (UN General Assembly)

Influential interest groups

Children's Defense Fund

How Much Does Heredity Contribute to Behavior?

Heritability Estimates

- Portion of individual differences attributable to genetics
- Ranges from 0 to 1.00

Concordance

- What percent of the time do twins both show a trait?
- Ranges from 0 to 100%

Reaction Range

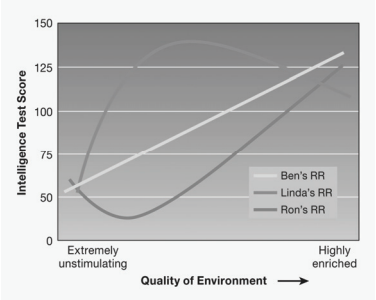

Figure 2.9

Genetic–Environment Correlation

Passive correlation

Evocative correlation

Active correlation

- Niche-picking

Similarity in Mothers' Interactions for Pairs of Siblings Differing in Genetic Relatedness

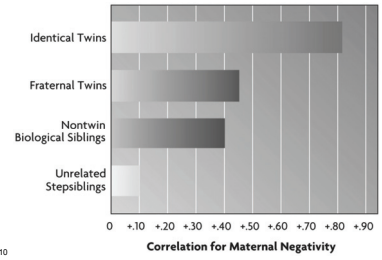

Figure 2.10

Environmental Influences on Gene Expression

Genetic–environmental correlation is viewed as *driven by genetics*.

- Many researchers take issue with supremacy of heredity.
- Bidirectional influences

Parents and other caring adults can uncouple unfavorable genetic–environmental correlations.

For example, twins who displayed aggressive behavior could be positively affected by mothers who practiced good, positive parenting.

The Epigenetic Framework

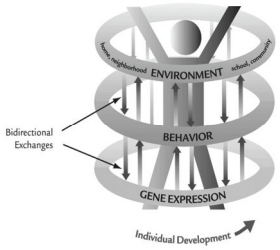

Figure 2.11

CHAPTER 3
PRENATAL DEVELOPMENT

CHAPTER-AT-A-GLANCE

Chapter Outline	Instruction Ideas	Supplements
Motivations for Parenthood pp. 92–95 Why Have Children? • How Large a Family? • Is There a Best Time During Adulthood to Have a Child?	Learning Objectives 3.1–3.2 Ask Yourself p. 95	Test Bank Items 1–9, 93–94 Please contact your Pearson publisher's representative for a wide range of video offerings available to adopters.
Prenatal Development pp. 95–102 Conception • Period of the Zygote • Period of the Embryo • Period of the Fetus	Learning Objective 3.3 Learning Activities 3.1–3.3 Ask Yourself p. 102	Test Bank Items 10–42, 95
Prenatal Environmental Influences pp. 102–119 Teratogens • Other Maternal Factors • The Importance of Prenatal Health Care	Learning Objectives 3.4–3.7 Lecture Enhancements 3.1–3.3 Learning Activities 3.3–3.6 Ask Yourself p. 119	Test Bank Items 43–89, 96–99
Preparing for Parenthood pp. 120–122 Seeking Information • The Baby Becomes a Reality • Models of Effective Parenthood • The Parental Relationship	Learning Objective 3.8 Lecture Enhancement 3.4 Learning Activities 3.3, 3.6 Ask Yourself p. 122	Test Bank Items 90–92, 100

BRIEF CHAPTER SUMMARY

This chapter begins with a discussion of motivations for parenthood and current changes in birth patterns. Today, men and women are more likely to weigh the pros and cons of having children than they were in previous generations. The American family has declined in size over time, and births to women over age 30 have increased. Although reproductive capacity declines with age, adults who delay childbearing until their education is complete, their careers are established, and they are emotionally more mature may be better able to invest in parenting.

At no other time is change as rapid as it is before birth. Prenatal development takes place in three phases: (1) the period of the zygote, during which the newly fertilized ovum travels down the fallopian tube and attaches itself to the uterine wall; (2) the period of the embryo, during which the groundwork for all body structures is laid down; and (3) the period of the fetus, the "growth and finishing" phase.

The prenatal period is a vulnerable time. The developing organism can be endangered by teratogens, including drugs, cigarettes, alcohol, radiation, and environmental pollution, as well as infectious disease, inadequate exercise and nutrition, maternal stress, Rh blood incompatibility, and maternal age. Prenatal health care is vitally important to ensure the health of mother and baby.

For most expectant parents, however, the prenatal period is not a time of medical hazard. Rather, it is a time of major life change in which mothers and fathers prepare for parenthood.

LEARNING OBJECTIVES

After reading this chapter, you should be able to:

3.1 Cite advantages and disadvantages of parenthood mentioned by contemporary American couples. (pp. 92–93)

3.2 Review current trends in family size, parenting quality, and childbearing age, and discuss their impact on child development. (pp. 93–95)