EIGHTH EDITION

Lifespan Development

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Helen Bee

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Eighth Edition

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Brief Contents

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Preface

Having taught human development for many years, I know that teaching a course in lifespan development is one of the most difficult assignments an instructor can face. You must deal with the challenge of getting through all the necessary descriptive material in a single semester. At the same time, you have to cover theories of development, some of which are among the most complex and important theories in the behavioral sciences. In preparing this eighth edition of *Lifespan Development*, I hoped to support lifespan development instructors by producing a text that thoroughly addresses the basic facts of development, makes the more abstract material about theories understandable to students, and motivates them to read the text by presenting information in a way that is both engaging and relevant to real-world applications of developmental science.

Content Organization and Highlights

We begin our exploration of lifespan development in Chapter 1 by introducing students to the science of human development, its history, and its methods. In Chapter 2, we turn to theories of development. We cover both classic and contemporary theories as well as the criteria that developmentalists use to compare them. Chapter 3 deals with prenatal development and the beginning days of life.

Perceptual development in infancy is the subject of Chapter 4. We explore infants' remarkable sensory abilities and how they interpret what they see, hear, smell, taste, and touch. We discuss infants' cognitive development in Chapter 5. The chapter addresses Piaget's research and the theoretical concepts he proposed to explain his findings. Learning, memory, the beginnings of language, and a discussion of individual differences in intelligence follow. In Chapter 6, we move on to infants' social and personality development, including the important topics of temperament and attachment.

Early childhood (ages 2 to 6) physical and cognitive development are the subjects of Chapter 7. We outline the critical changes in children's bodies and minds that enable them to become less dependent on adults. In Chapter 8, we focus on the development of important aspects of the self, such as personality and gender role development. Social relationships are also addressed in this chapter.

We discuss cognitive development among school-age children (ages 6 to 12) in Chapter 9. In explaining cognitive development, we emphasize the interactive influence of internal factors such as intelligence and external factors such as formal education. Themes of personality change and the development of stable peer relationships are the topics of Chapter 10.

Moving on to the teen years in Chapter 11, we present adolescence as a period of risks and opportunities that teens navigate with the help of newly developed, yet powerful, cognitive tools. Peer relationships occupy an important place in Chapter 12. Nevertheless, we point out that relationships with parents continue to be important to teens.

In early adulthood, about ages 20 to 40, developmental pathways begin to diverge significantly. As we show in Chapter 13, many adults reach their physical peak during these years. Others establish habits that lead to poor health later in life. Young adults' educational choices are another source of divergence. In Chapter 14, we discuss the obstacles and milestones that young adults confront as they become established in adult relationships, roles, and careers.

The importance of the behavioral choices of early adulthood comes to light in middle adulthood (ages 40 to 65), as we discuss in Chapter 15. We point out that many of the challenges of this period arise from physical and cognitive changes. Changing social roles is the theme of Chapter 16.

Chapters 17 and 18 deal with later adulthood, age 65 and beyond. We discuss inevitable physical declines and the strategies that older adults use to cope with them. Social roles continue to be redefined as adults age. In many cases, social networks become more important than family networks. Finally, in Chapter 19, we address the topics of death, dying, and bereavement.

Why Do You Need This New Edition?

Each revision of *Lifespan Development* provides us with an opportunity to critically examine and improve all aspects of the text's organization and pedagogy. Here are some of the improvements we've made to the eighth edition:

Assessment-Driven Learning Objectives

College faculty and administrators are seeking ways to integrate opportunities for assessment and accountability

into the instructional materials that they require students to use. In response to this need, we have revised every instructional objective in *Lifespan Development* to increase the text's focus on assessment. Our goal is to provide readers with the direction they need to extract key information from the text. Importantly, too, we want to be sure that every objective helps instructors choose test items and build assignments that answer the questions, "Are students learning what they should from a course in human development, and are they capable of applying what they are learning to practical questions about human development?"

Updated Coverage

This edition includes new information on these topics:

- Prenatal exposure to maternal stress and children's social reasoning skills (Chapter 3)
- Interactions between parenting and temperament (Chapter 6)
- Abuse in early childhood as a predictor of adolescent substance abuse (Chapter 7)
- Preschool participation and adolescent health outcomes (Chapter 7)
- Interactions between socioeconomic status and cognitive development (Chapter 7)
- Nonverbal communication skills and theory of mind development (Chapter 7)
- Parenting styles in same-sex-couple-headed families (Chapter 8)
- Executive control development and the transition to school (Chapter 9)
- Effects of working memory training on school-age children's memory performance (Chapter 9)
- School-age children's beliefs about intelligence and academic ability (Chapter 10)
- Cross-gender behavior in childhood as a predictor of sexual orientation in adolescence (Chapter 11)
- Political self-efficacy and cognitive development (Chapter 11)
- Gender differences in achievement goal orientations (Chapter 11)
- Relations among aggression, parenting, and personality (Chapter 12)
- Social-support seeking and social competence (Chapter 12)
- Neurological effects of peer rejection (Chapter 12)
- Cross-ethnic friendships (Chapter 12)
- Peer relationships and religious beliefs (Chapter 12)
- Maternal influence on ethnic identity development (Chapter 12)
- Intimate partner abuse and self-rated quality of life (Chapter 13)
- Self-esteem, depression, and intimate partnerships (Chapter 14)
- Selection, optimization, and compensation in everyday life (Chapter 15)
- Unemployment and depression (Chapter 16)
- Difficult life experiences and the development of wisdom (Chapter 17)
- Effects of verbalization on memory function (Chapter 17)
- Function of reminiscence among nursing home residents (Chapter 18)
- Social support and caregiver stress (Chapter 19)

In-Chapter Videos

Video topics range from discussions of contemporary research to personal stories of individuals' struggles with and triumphs over the challenges associated with each phase of the lifespan. Here is a list of video titles.

- *The Experimental Method*
- *Research Ethics*
- *Freud's Theory of Personality*
- *Late Adulthood Relationships*
- *Conservation of Volume*
- *Family and Twin Studies*
- *Object Permanence Across Cultures*
- *Researcher Kimberly Cuevas Talks About Infant Learning*
- *Self-Awareness*
- *Gender Socialization*
- *Parenting Styles and Their Effects*
- *Effects of Physical Punishment*
- *Stereotypes and Testing*
- *Adolescent Brain Development*
- *Treatment of Eating Disorders*
- *How to Make Healthier Choices*
- *Overcoming Phobias*
- *Stress About the Future: Amanda*
- *The Dating Game*
- *The Physical Effects of Alcohol*
- *Health Disparities*
- *Midlife Transition*
- *Relationships in Late Adulthood*

- *Remembering and Honoring the Dead Across Cultures*
- *Grieving Part I: Losing a Wife and Mother to Cancer*
- *Grieving Part II: Losing a Daughter and Sister in a Terrorist Attack*

Themed Essays

Themed essays are among the most popular features of *Lifespan Development*. In the eighth edition, the REVEL platform has enabled us to give them a fresh look. We have also integrated interactive journals into all of three types of essays.

NO EASY ANSWERS No Easy Answers essays introduce students to the idea that there are many questions for which developmental psychologists cannot provide definitive answers. For example, the essay in Chapter 15 deals with hormone therapy and discusses the benefits and potential risks of this therapy. In an interactive journal at the end of the essay, students are asked to reflect on whether they feel that, due to the risks involved, hormone therapy should be a last resort or that, because no medical treatment is entirely free of risk, women should feel free to take hormone therapy to help relieve some of their menopausal symptoms.

I developed these discussions in response to my own students' continuing difficulty in understanding that psychology is not a science that can offer straightforward recipes for perfect behavioral outcomes. My hope is that, by reading these discussions, students will become more sensitive to the complexity of human development and more tolerant of the ambiguities inherent in the behavioral and social sciences.

RESEARCH REPORT These essays provide detailed accounts of specific research studies. For example, Chapter 5 discusses research on early gestural language in the children of deaf parents, and Chapter 17 examines research on mild cognitive impairment and Alzheimer's disease. Interactive journal questions appear at the end of each feature to help students assess the research and make connections between the research study and everyday developmental issues.

DEVELOPMENTAL SCIENCE Developmental Science essays explore practical applications of developmental theory and research. For example, the Developmental Science in the Classroom essay in Chapter 5 describes a pre-kindergarten teacher's questions about whether the toddlers he has been assigned to teach benefit from being read to. Likewise, Developmental Science in the Clinic in Chapter 11 examines crisis intervention for pregnant teenagers, and Developmental Science at Home in Chapter 6 addresses choosing a day-care center. Each Development Science essay concludes with an interactive journal question that prompts students to reflect on its content.

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When students are engaged deeply, they learn more effectively and perform better in their courses. This simple fact inspired the creation of Revel: an immersive learning experience designed for the way today's students read, think, and learn. Built in collaboration with educators and students nationwide, Revel is the newest, fully digital way to deliver respected Pearson content.

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Available Instructor Resources

We have designed a collection of instructor resources for this edition that will help you prepare for class, enhance your course presentations, and assess your students' understanding of the material. These can be downloaded at **https://www.pearsonhighered.com**.

Instructor's Manual. The Instructor's Manual has been thoroughly revised and reorganized to be even more user-friendly. Each chapter has the following resources: A Chapter Overview, a list of the numbered Learning Objectives, and a complete Key Terms table. Each chapter also offers an extensive, detailed, and fully integrated Teaching Notes section with Discussion Launchers, Feature Box Activities, Classroom Activity ideas, and Critical Thinking Questions. The Teaching Notes are closely tied to the numbered learning objectives from the text so you can easily connect the content of this manual to the corresponding learning objectives. For instructors looking to expand on the textbook content, each chapter closes with an optional relevant Lecture Enhancer.

Test Bank. The Test Bank is composed of approximately 2,000 fully referenced multiple-choice, short-answer, and essay questions. The test questions are tied to the numbered learning objectives from the text, allowing you

to assess knowledge of specific skills. Questions may also be viewed by level of difficulty and skill type. This supplement is also available in MyTest, a computerized Test Bank version that allows for easy creation of polished hard-copy tests.

MyTest. The Test Bank is also available via MyTest, a powerful assessment generation program that helps instructors easily create and print quizzes and exams. Questions and tests can be authored online, allowing instructors ultimate flexibility and the ability to efficiently manage assessments anytime, anywhere. For more information, go to **https://www.pearsonhighered.com/mytest**.

PowerPoint presentations. These slides, presented in a traditional format with excerpts of the text material and artwork, are available for download at **https://www.pearsonhighered.com**.

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Our Reviewers

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About the Author

Denise Boyd received her Ed.D. in educational psychology from the University of Houston and has been a psychology instructor in the Houston Community College System since 1988. From 1995 until 1998, she chaired the psychology, sociology, and anthropology department at Houston Community College–Central. She has coauthored five other Pearson Allyn and Bacon texts: with Samuel Wood and Ellen Green Wood, *Mastering the World of Psychology* (sixth edition) and *The World of Psychology* (seventh edition); with Helen Bee, *The Developing Child* (thirteenth edition) and *The Growing Child* (first edition); and with Genevieve Stevens, *Current Readings in Lifespan Development.* A licensed psychologist, she has presented a number of papers at professional meetings, reporting research in child, adolescent, and adult development. She has also presented workshops for teachers whose students range from preschool to college.

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Chapter 1
Basic Concepts and Methods

Chapter Module Outline

The last time you saw a relative or friend whom you hadn't seen for a while, perhaps you remarked on how much or how little the person had changed. About a child, you may have said: "Sally's grown so much since the last time I saw her." About an older person: "Uncle Julio looks much more frail than he did at Grandpa's birthday party." Such comments suggest that we humans are natural observers of the ways in which we change with age. But we also notice characteristics that seem to stay the same over time. We might say, "Sally's always been such a sweet child," or "Uncle Julio's mind is as sharp as ever." And our powers of observation don't stop with simple descriptions. We also come up with theories to explain our observations. Perhaps you've said something like, "Sally's parents are great role models. That's probably why she's so well behaved," or "Grandpa and Uncle Julio are both pretty sharp for their age. I guess they have good genes." As these observations suggest, human development is a complex phenomenon. To understand it, we developmentalists must examine many variables and the relations among them.

The unique developmental pathway that each person follows results from the person's own characteristics, the choices that others make for him in childhood, and the decisions that he makes for himself in adulthood.

In this introductory chapter, you will learn how the science of human development came into being. You will also learn about the key issues in the scientific study of development. When you finish reading the chapter, you will be acquainted with the research designs and methods that developmentalists use.

1.1: An Introduction to Human Development

The field of *human development* is the scientific study of age-related changes in behavior, thinking, emotion, and personality. Long before the scientific method was used to study development, though, philosophers offered explanations for differences they observed in individuals of different ages. In the 19th century, the scientific methods used by early pioneers in the study of human behavior were applied to questions about age-related change. Nevertheless, the term *development* was largely confined to childhood during the early years. However, in the second half of the 20th century, behavioral scientists began to acknowledge that important age-related changes occur across the entire human lifespan. Their efforts led to useful ways of categorizing important issues in the study of development and revealed a wealth of data suggesting that human development is a highly complex process.

By the end of this module, you will be able to:

- **1.1.1** **Recall the ideas about human development proposed by early philosophers and scientists**
- **1.1.2** **Describe how the lifespan perspective tries to fully explain human development**
- **1.1.3** **Identify the categories used by developmental scientists to organize the study of human development**

1.1.1: Philosophical and Scientific Roots

OBJECTIVE: **Recall the ideas about human development proposed by early philosophers and scientists**

Early philosophers based their ideas about development on spiritual authorities, general philosophical orientations, and deductive logic. In the 19th century, though, people who wanted to better understand human development turned to science.

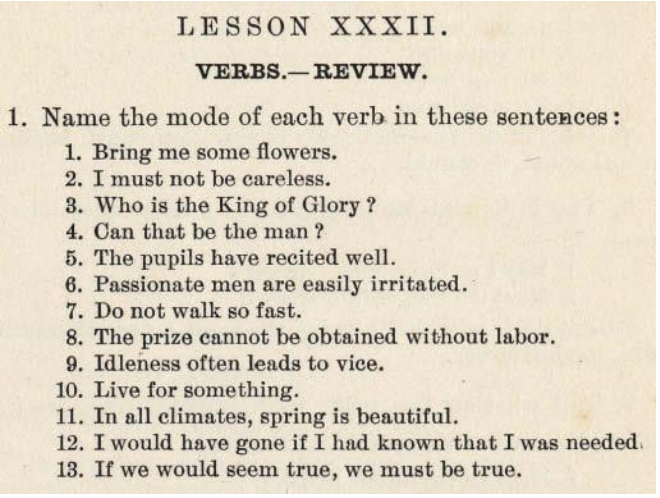
ORIGINAL SIN, THE BLANK SLATE, AND INNATE GOODNESS Philosophers' inquiries into the nature of development focused on why babies, who appear to be quite similar, grow up to vary widely. They were particularly concerned with the moral dimensions of development.

Early Philosophers' Views of Development

Three approaches to human development have influenced philosophers' debates about developmental outcomes. These perspectives differ in their emphasis on internal factors, such as inborn tendencies, and external influences, such as parenting.

Original sin—The Christian doctrine of *original sin*, often attributed to 4th-century philosopher Augustine of Hippo, taught that all humans are born with a selfish nature. To reduce the influence of this inborn tendency toward selfishness, Augustine taught, humans must seek spiritual rebirth and submit themselves to religious training. Thus, from this perspective, developmental outcomes, both good and bad, result from each individual's struggle to overcome an inborn tendency to act immorally when doing so somehow benefits the self.

The following page from the *Hoenshel's Complete Grammar*, published in 1895, illustrates the influence of the doctrine of original sin on education and child rearing. Statements that promote religious and moral principles are embedded in this exercise on verbs. The idea was that the goals of teaching grammar to children and shaping their spiritual development could be, and should be, accomplished simultaneously.



LESSON XXXII.

VERBS.—REVIEW.

1. Name the mode of each verb in these sentences:

1. Bring me some flowers.
2. I must not be careless.
3. Who is the King of Glory?
4. Can that be the man?
5. The pupils have recited well.
6. Passionate men are easily irritated.
7. Do not walk so fast.
8. The prize cannot be obtained without labor.
9. Idleness often leads to vice.
10. Live for something.
11. In all climates, spring is beautiful.
12. I would have gone if I had known that I was needed.
13. If we would seem true, we must be true.

The blank slate—By contrast, 17th-century English philosopher John Locke drew on a broad philosophical approach known as *empiricism* when he claimed that the mind of a child is a *blank slate*. Empiricism is the view that humans possess no innate tendencies and that all differences among humans are attributable to experience. The blank-slate view suggests that adults can mold children into whatever they want them to be. Therefore, differences among adults can be explained in terms of differences in their childhood environments rather than as a result of a struggle to overcome any kind of inborn tendencies, as the original-sin view proposed.

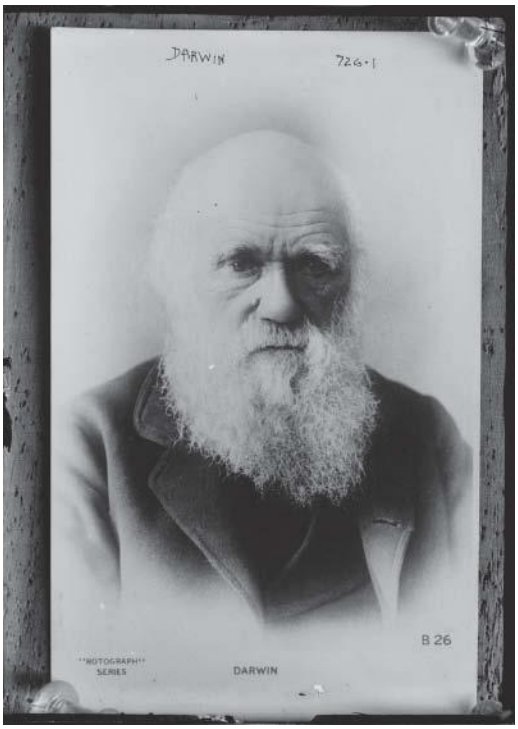
Innate goodness—Different still was the *innate goodness* view proposed by 18th-century Swiss philosopher Jean-Jacques Rousseau. He claimed that all human beings are naturally good and seek out experiences that help them grow (Newman & Newman, 2016). Rousseau believed that children need only nurturing and protection to reach their full potential. Developmental outcomes are good when a child's environment refrains from interfering in her attempts to nurture her own development. In contrast, outcomes are poor when a child experiences frustration in her efforts to express the innate goodness with which she was born. Thus, the innate-goodness and original-sin approaches share the view that development involves a struggle between internal and external forces. In contrast to both, the blank-slate view sees the child as a passive recipient of environmental influences.

EARLY SCIENTIFIC THEORIES The 19th century saw an explosion of interest in how scientific methods might be applied to questions that previously had been thought to belong within the domain of philosophy.

Early Scientific Studies and Theories of Development

In the 19th century, scientific methods were being used to study all kinds of phenomena, including human development.

Charles Darwin—Charles Darwin proposed that studying children's development might help scientists better understand the evolution of the human species. To that end, Darwin and other like-minded scientists kept detailed records of their own children's early development (called *baby biographies*), in the hope of finding evidence to support the



Charles Darwin, who fathered 10 children, initiated the scientific study of childhood. He used the same scientific methods that led to the discoveries on which he based his theory of evolution to make and record daily observations of his children's development.

theory of evolution (Dewsbury, 2009). These were the first organized studies of human development.

G. Stanley Hall—G. Stanley Hall of Clark University used questionnaires and interviews to study large numbers of children. His 1891 article "The Contents of Children's Minds on Entering School" represented the first scientific study of child development (White, 1992). Hall agreed with Darwin that the milestones of childhood were similar to those that had taken place in the development of the human species. He thought that developmentalists should identify *norms*, or average ages at which developmental milestones are reached. Norms, Hall said, could be used to learn about the evolution of the species as well as to track the development of individual children.

Arnold Gesell—Arnold Gesell's research suggested the existence of a genetically programmed sequential pattern of change (Gesell, 1925; Thelen & Adolph, 1992). Gesell used the term *maturation* to describe such a pattern of change. He thought that maturationally determined development occurred, regardless of practice, training, or effort (Newman & Newman, 2016). For example, infants don't have to be taught how to walk. Because of his strong belief that many important developmental changes are determined by maturation, Gesell spent decades studying children and developing norms. He pioneered the use of movie cameras and one-way observation devices to study children's behavior. His findings became the basis for many *norm-referenced tests* that are used today to determine whether individual children are developing at a rate that is similar to that of other children of the same age. Such tests help early educators find ways of helping young children whose development lags behind that of others.

1.1.2: The Lifespan Perspective

OBJECTIVE: Describe how the lifespan perspective tries to fully explain human development

Psychologists once thought of adulthood as a long period of stability followed by a short span of unstable years immediately preceding death. This view has changed because, for one thing, it has become common for adults to go through major life changes, such as divorce and career shifts. There has also been a significant increase in life expectancy in the industrialized world. At the beginning of the 20th century, Americans' life expectancy at birth was only 49 years. By the century's end, the expected lifespan of someone born in the United States was about 76 years. As a result, older adults now constitute a larger proportion of the U.S. population than ever before. In fact, adults over the age of 100 are one of the most rapidly growing age groups in the industrialized world. These changes have led to the adoption of the *lifespan perspective*, the idea that important changes occur during every period of development and that these changes must be interpreted in terms of the culture and context in which they occur (Baltes, Reese, & Lipsitt, 1980).

Key Elements of the Lifespan Perspective

Understanding change in adulthood has become just as important as understanding change in childhood, and input from many disciplines is necessary to fully explain human development. This new perspective emphasizes several key elements.

Plasticity—Individuals of all ages possess the capacity for positive change in response to environmental demands.

Interdisciplinary research—Research from different kinds of disciplinary perspectives (e.g., anthropology, economics, psychology) is needed to fully understand lifespan development.

Multicontextual nature of development—Individual development occurs within several interrelated contexts (e.g., family, neighborhood, culture).

Paul Baltes (1939–2006) was a leader in the development of a comprehensive theory of lifespan human development (Baltes, Staudinger, & Lindenberger, 1999; Lerner, 2008). Baltes emphasized the positive aspects of advanced age. He pointed out that, as human beings age, they adopt strategies that help them maximize gains and compensate for losses. He cited the example of concert pianist Arthur Rubinstein, who was able to outperform much younger musicians well into his 80s (Cavanaugh & Whitbourne, 1999). Rubinstein reported that he maintained his performance capacity by carefully choosing pieces that he knew

very well (maximizing gain) and by practicing those pieces more frequently than he had at earlier ages (compensating for the physical losses associated with age).

1.1.3: The Domains and Periods of Development

OBJECTIVE: Identify the categories used by developmental scientists to organize the study of human development

Scientists who study age-related changes often group them in three broad categories, called *domains of development*.

Domains of Development

Each of the domains of development includes a cluster of variables. Each cluster is defined by characteristics that distinguish from the others.

Physical domain—The *physical domain* includes changes in the size, shape, and characteristics of the body. For example, developmentalists study the physiological processes associated with puberty. Also included in this domain are changes in how individuals sense and perceive the physical world, such as the gradual development of depth perception over the first year of life.

Cognitive domain—Changes in thinking, memory, problem solving, and other intellectual skills are included in the *cognitive domain*. Researchers working in the cognitive domain study topics as diverse as how children learn to read and why some memory functions deteriorate in old age. They also examine the ways in which individual differences among children and adults, such as intelligence-test scores, are related to other variables in this domain.

Social domain—The *social domain* includes changes in variables associated with the relationship of an individual to others. For instance, studies of children's social skills fall into the social domain, as does research on individual differences in personality. Individuals' beliefs about themselves are also usually classified within the social domain.

Using domain classifications helps to organize discussions of human development. We need to remember, however, that the three domains do not function independently. For instance, when a girl goes through puberty—a change in the physical domain—her ability to think abstractly (cognitive domain) and her feelings about potential romantic partners (social domain) change as well.

CATEGORIZING AGE-RELATED CHANGES In addition to organizing developmental changes into domains, theorists and researchers also organize age-related changes into periods of development that encompass the lifespan. Milestones—which may be physical, cognitive, or social in nature—mark the beginning and end of each period (see *Periods of Development*).

Despite the difficulties involved in defining the various periods of development, these periods can still serve as a useful system for organizing the study of development. We have organized this textbook around them. For our purposes, the first 2 years after birth constitute infancy. Early childhood is defined as the years between ages 2 and 6. Our chapters on middle childhood discuss development between the ages of 6 and 12. Adolescence is defined as the years from 12 to 18, and early adulthood as those between 18 and 40. Finally, the period from 40 to 60 is middle adulthood, and the years from 60 to the end of life are late adulthood. Table 1.1 provides you with a review of the milestones associated with each period of development.

WRITING PROMPT

Consider This—Child-Rearing Implications of Original Sin, the Blank Slate, and Innate Goodness

What are the child-rearing implications of each philosophical school of thought discussed in this module? Give two examples of how parents who hold each perspective might respond to a child's behavior.

The response entered here will appear in the performance dashboard and can be viewed by your instructor.

Submit

1.2: Key Issues in the Study of Human Development

Several key issues cut across all the domains and periods of development. These include the relative contributions to development of biological and environmental factors and the presence or absence of stages. In addition, one researcher might propose that a specific change is common to all human beings, while another might propose that it occurs under some conditions but not others. Researchers debate, too, the degree to which the settings in which development occurs contribute to developmental outcomes.

By the end of this module, you will be able to:

- **1.2.1 Explain the nature–nurture debate**
- **1.2.2 Describe the continuity–discontinuity debate**
- **1.2.3 Differentiate between the three kinds of age-related changes**
- **1.2.4 Explain the influence of context on human development**

Periods of Development

The milestones that determine the beginning and end of each period of development are biological, while others are social. Biological milestones are shared by all humans. By contrast, social milestones vary from one culture to another.

Prenatal	The *prenatal period* is the only one that has clearly defined biological boundaries at its beginning and end: It begins at conception and ends at birth.
Infancy	*Infancy* begins at birth and ends when children begin to use language to communicate. Some children achieve linguistic competence earlier than others. Thus, two children of the same age may be in different periods of development. However, developmentalists usually think of infancy as the first 2 years of life.
Early Childhood	The use of language to communicate marks the beginning of *early childhood*. This is a milestone achieved by all healthy children, but it occurs at different ages across children. Nevertheless, developmentalists typically use this term to refer to children between the ages of 2 and 6.
Middle Childhood	A social event—the child's entrance into school or some other kind of formal training—marks the transition from early to *middle childhood*. Cultures vary to some degree with regard to when early childhood ends and middle childhood begins. For example, children must be enrolled in school beginning at age 4 in Scotland but not until age 8 in a few states in the United States. By contrast, a biological milestone, puberty, signals the end of middle childhood. Despite these differences, developmentalists usually include children between age 6 and puberty in the middle childhood category.
Adolescence	Although developmentalists usually think of adolescence as beginning at puberty and ending at age 18 or so, the timing of the transition from middle childhood to adolescence varies across individuals. And when does adolescence end? One way of answering this question is by noting the boundaries that different cultures set for legal adulthood. For instance, a person must be 18 years of age to join the military without parental permission in the United States. By contrast, the age of majority for military service is 15 in Laos, 16 in the United Kingdom, 17 in Nicaragua, 19 in Algeria, 20 in South Korea, 21 in Brazil, and 22 in Afghanistan (Central Intelligence Agency [CIA], 2013). Even within a single culture, such as the United States, legal adulthood is defined differently for different activities: 16 for driving, 17 or 18 for criminal accountability, 18 for signing contracts, 21 for buying alcohol, and 24 for economic independence with regard to college financial aid. Such variations highlight the social and psychological, rather than biological, nature of the transition to adulthood, the complexities of which have led some researchers to propose a new period of development called *emerging adulthood* that encompasses the late teens and early 20s.
Early Adulthood	The beginning of *early adulthood* is marked by the attainment of physical maturity and the social norms of each culture. In general, developmentalists classify individuals between the ages of 18 and 40 as early adults. Socially, early adulthood is the period during which individuals begin to work toward attaining independence from their families of origin. For instance, graduation from high school is a social milestone that is associated with the beginning of an individual's pathway to independence. For many, graduation from college is another milestone on the road that leads to full-fledged adulthood.
Middle Adulthood	The transition from early to *middle adulthood*, generally thought to begin around age 40 and end at around age 60, is far more arbitrary than the transition to early adulthood. There is no clear physical boundary between early and middle adulthood, and social boundaries are rapidly changing. For instance, childbirth, once thought of almost exclusively as an early-adulthood event, is becoming increasingly common among middle-aged women.
Late Adulthood	*Late adulthood*, though customarily described as beginning at age 60, is not distinguished by any biological or social events that clearly distinguish a middle-aged adult from an older adult. A social milestone, retirement, is associated with this transition. However, the popularity of the concept of "early retirement" shows that the link between retirement and late adulthood status is one that varies widely across individuals.

Table 1.1 Review of Periods of Development

Each period of development is marked by a milestone at its beginning and another at its end.

Period	Beginning Milestone	Ending Milestone
Prenatal	Conception	Birth
Infancy	Birth	Language
Early childhood	Language	School entrance
Middle childhood	School entrance	Puberty
Adolescence	Puberty	Attainment of culturally defined adulthood
Early adulthood	Attainment of culturally defined adulthood	Attainment of culturally defined mid-life, typically age 40
Middle adulthood	Attainment of culturally defined mid-life, typically age 40	Attainment of culturally defined late adulthood, typically age 60
Late adulthood	Attainment of culturally defined late adulthood, typically age 60	Death

1.2.1: Nature Versus Nurture

OBJECTIVE: Explain the nature–nurture debate

Some early developmentalists thought of change as resulting from *either* forces outside the person *or* forces inside the person. In struggling with this important issue, psychologists have moved away from either/or approaches toward more subtle ways of looking at both types of influences. The reason for this shift is that there is evidence that both internal and external forces, as well as interactions between the two, shape development (see "The Nature Nurture Debate").

1.2.2: Continuity Versus Discontinuity

OBJECTIVE: Describe the continuity–discontinuity debate

Another key issue in the study of human development is the *continuity–discontinuity* issue. The question is whether

The Nature–Nurture Debate

The debate about the relative contributions of biological processes and experiential factors to development is known as the *nature–nurture debate*.

The Nature Side	The concept of *inborn biases* is based on the notion that children are born with tendencies to respond in certain ways. Some of these inborn biases are shared by virtually all children. For instance, the sequence in which children acquire spoken language—single words precede two-word sentences, and so on—is virtually identical in all children, no matter what language they are learning (Pinker, 2002). Moreover, babies seem to be equipped with a set of behaviors that entice others to care for them, including crying, snuggling, and, very soon after birth, smiling, and they appear to be delighted when their efforts to arouse interest in others are successful. Other inborn biases may vary from one individual to another. Even in the early days of life, for example, some infants are relatively easy to soothe when they become distressed, while others are more difficult to manage. Whether these inborn patterns are coded in the genes, are created by variations in the prenatal environment, or arise through some combination of the two, the basic point is that a baby is not a blank slate at birth. Babies seem to start life prepared to seek out and react to particular kinds of experiences.
The Nurture Side	Thinking on the nurture side of the issue is also more complex than in the past. For example, modern developmentalists have accepted the concept of internal models of experience. The key element of this concept is the idea that the effect of an experience depends not on its objective properties but rather on the individual's interpretation—the meaning that the individual attaches to that experience. For instance, suppose a friend says, "Your new haircut looks great; it's a lot nicer when it's short like that." Your friend intends to pay you a compliment, but you also hear an implied criticism ("Your hair used to look awful"), and your reactions, your feelings, and even your relationship with your friend are affected by how you interpret the comment—not by what your friend meant or by the objective qualities of the remark.

age-related change is primarily a matter of amount or degree (the continuity side of the debate) or of changes in type or kind (the discontinuity side). For example, generally speaking, do you have more or fewer friends than you did when you were in elementary school? If you're like most other people, you have fewer. But do age differences in the number of friends people have really capture the difference between friendship in childhood and adulthood? Isn't it also true that friendship itself is different in childhood and adulthood? For example, mutual trust is a characteristic of adult and teen friendships but is not a feature of friendship prior to age 10 or so. Thus, the continuous aspect of friendship is that people of all ages have peer relationships, and the discontinuous aspect of friendship is that the characteristics of friendship itself vary by age.

Quantitative and Qualitative Change

Another way of approaching the continuity–discontinuity question is to think of it in terms of *quantitative* and *qualitative* change.

Quantitative change—A *quantitative change* is a change in amount. For instance, children get taller as they get older. Their heights increase, but the variable of height itself never changes. In other words, height changes continuously; it has continuity from one age to the next.

Qualitative change—Alternatively, a *qualitative change* is a change in characteristic, kind, or type. For example, puberty is a qualitative change. Prior to puberty, humans are incapable of reproduction. After puberty, they can reproduce. Therefore, postpubescent humans possess a characteristic that prepubescent humans do not: the capacity to reproduce. In other words, postpubescent and prepubescent humans are qualitatively different, and changes in the capacity to reproduce are discontinuous in nature. Later in life, another qualitative change in reproductive capacity occurs when women go through menopause and lose the capacity for reproduction.

Stages of development—Of particular significance to developmental theories is the idea that, if development consists only of additions (continuous, quantitative change), then the concept of *stages*—qualitatively distinct periods of development—is not needed to explain it. However, if development involves reorganization or the emergence of wholly new strategies, qualities, or skills (discontinuous, qualitative change), then the concept of stages may be useful. An important difference among theories of development is whether they assume that development occurs in stages or is primarily continuous in nature.

1.2.3: Three Kinds of Change

OBJECTIVE: Differentiate between the three kinds of age-related changes

Have you ever thought about the difference between taking your first steps and your first date? Clearly, both are related to age, but they represent fundamentally different kinds of change. Generally, developmental scientists think of each age-related change as representing one of three categories.

Age-Related Changes

Developmentalists distinguish between changes that are typical for all humans and those that are relevant in some cultures but not in others. Changes that are due to individual differences among humans represent a third type of change.

Normative age-graded changes—*Normative age-graded changes* are universal—that is, they are common to every individual in a species and are linked to specific ages. Some universal changes (like a baby's first step) happen because we are all biological organisms subject to a genetically programmed maturing process. The infant who shifts from crawling to walking and the older adult whose skin becomes progressively more wrinkled are following a plan that is an intrinsic part of the physical body, most likely something in the genetic code itself.

However, shared experiences also contribute to normative age-graded. For example, a social clock also shapes all (or most) lives into shared patterns of change (Helson, Mitchell, & Moane, 1984). In each culture, the *social clock*, or *age norms*, defines a sequence of "normal" life experiences, such as the right time to go out on a first date, the appropriate timing of marriage and childbearing, and the expected time of retirement.

The biological clock obviously constrains the social clock to some extent at least. Virtually every culture emphasizes family formation in early adulthood because that is, in fact, the optimal biological time for child rearing.

Age norms can lead to *ageism*—prejudicial attitudes about older adults, analogous to sexism or racism (Iverson, Larsen, & Solem, 2009). In U.S. culture, for example, older adults are very often perceived as incompetent. Many are denied opportunities to work because employers believe that they are incapable of carrying out required job functions. Thus, social expectations about the appropriate age for retirement work together with ageism to shape individual lives, resulting in a pattern in which most people retire or significantly reduce their working hours in later adulthood.

Normative history-graded changes—Equally important as a source of variation in life experience are historical forces, which affect each generation somewhat differently. Such changes are called *normative history-graded changes*. Social scientists use the word *cohort* to describe a group of individuals who are born within some fairly narrow span of years and thus share the same historical experiences at the same times in their lives. Within any given culture, successive cohorts may have quite different life experiences (see the Research Report).

Nonnormative changes—Finally, *nonnormative changes* result from unique, unshared events. One clearly unshared event in each person's life is conception; the combination of genes each individual receives at conception is unique. Thus, genetic differences—including physical characteristics such as body type and hair color as well as genetic disorders—represent one category of individual differences. Characteristics influenced by both heredity and environment, such as intelligence and personality, constitute another class of individual differences.

Other individual differences result from the timing of a developmental event. Child-development theorists have adopted the concept of a *critical period*—the idea is that there may be specific periods in development when an organism is especially sensitive to the presence (or absence) of some particular kind of experience.

Most knowledge about critical periods comes from animal research. For baby ducks, for instance, the first 15 hours or so after hatching is a critical period for the development of a following response. Newly hatched ducklings will follow any duck or any other moving object that happens to be around them at that critical time. If nothing is moving at that critical point, they don't develop any following response at all (Hess, 1972).

The broader concept of a sensitive period is more common in the study of human development. A *sensitive period* is a span of months or years during which a child may be particularly responsive to specific forms of experience or particularly influenced by their absence. For example, the period from 6 to 12 months of age may be a sensitive period for the formation of parent–infant attachment.

In studies of adults, an important type of nonnormative change has been that of off-time events (Neugarten, 1979). The idea is that experiences occurring at the expected times for an individual's culture or cohort will pose fewer difficulties for the individual than will off-time experiences. Thus, being widowed at 30 is more likely to produce serious life disruption and distress than would being widowed at 70.

Atypical development is another kind of nonnormative change. *Atypical development* (also known as *abnormal behavior*, *psychopathology*, or *maladaptive development*) refers to deviation from a typical, or "normal," developmental pathway in a direction that is harmful to an individual. Examples of atypical development include intellectual disability, mental illness, and behavioral problems such as extreme aggressiveness in children and compulsive gambling in adults.

WRITING PROMPT

Consider This—Cohort Effects and Memories of 9/11

Individuals who were born in 1985 were in high school when the terrorist attacks of September 11, 2001, occurred. Those who were born a decade later, in 1995, were in the early elementary grades. Individuals in both cohorts probably remember the events, but because they experienced them during different periods of development, the two groups might have been affected differently. What kinds of differences do you think might be found in these two cohorts' long-term reactions to the events of September 11, 2001?

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Research Report

An Example of a Cohort Effect: Children and Adolescents in the Great Depression

Research involving children and adolescents who grew up during the Great Depression of the 1930s illustrates that the same historical event can have different effects on adjacent cohorts (Elder, 1974, 1978; Elder, Liker, & Cross, 1984). In a classic study of cohort differences, Glen Elder and his colleagues used several hundred participants who were born either in 1920 or in 1928 and who also were participants in the Berkeley/Oakland Growth Study, a long-term study of groups of participants from childhood through late adulthood. Those in the 1920 group were in their teens during the Depression; those born in 1928 were still young children during the worst economic times.

In each cohort, researchers compared participants whose families had lost more than 35% of their pre-Depression income with those whose economic condition was better. They found that economic hardship was largely beneficial to the cohort born in 1920, who were teenagers when the Depression struck full force, while it was generally detrimental to the cohort born in 1928. Most of those in the older cohort whose families experienced the worst economic hardship were pushed into assuming adult responsibilities prematurely. Many worked at odd jobs, earning money that was vitally important to the family's welfare. They felt needed by their families, and as adults, they had a strong work ethic and commitment to family.

Those who were born in 1928 had a very different Depression experience. Their families frequently suffered a loss of cohesion and warmth. The consequences were generally negative for the children, especially the boys. They were less hopeful and less confident than their less economically stressed peers; in adolescence, they did less well in school and completed fewer years of education; as adults, they were less ambitious and less successful.

1.2.4: Contexts of Development

OBJECTIVE: Explain the influence of context on human development

To fully understand human development, we must understand the context in which it occurs. For instance, a child grows up in a number of separate, but related, contexts: her neighborhood and school, the occupations of her parents and their level of satisfaction in these occupations, her parents' relationships with each other and their own families, and so on.

A good example of research that examines such a larger system of influences is Gerald Patterson's work on the origins of delinquency (Granic & Patterson, 2006). His studies show that parents who use poor discipline techniques and poor monitoring are more likely to have noncompliant children. Once established, such a behavior pattern has repercussions in other areas of the child's life, leading to both rejection by peers and difficulty in school. These problems, in turn, are likely to push the young person toward delinquency (Dishion, Patterson, Stoolmiller, & Skinner, 1991; Vuchinich, Bank, & Patterson, 1992). So a pattern that began in the family is maintained and made worse by interactions with peers and with the school system.

The settings in which children grow up and adults age contribute to the developmental process. How do you think these older adults' experiences differ from those of people their age who live in industrialized cultures?

VULNERABILITY AND RESILIENCE Examining a single context provides insights into developmental processes, but it doesn't tell us the whole story. We have to keep in mind that all the various contexts interact with each other and with the characteristics of the individuals who are developing within them.

Factors That Contribute to Vulnerability and Resilience

Some developmentalists have found the concepts of vulnerability and resilience to be useful (Bowman, 2013).

Inborn vulnerabilities and protective factors—According to the vulnerability/resilience view, each child is born with certain vulnerabilities, such as a tendency toward emotional irritability or alcoholism, a physical abnormality, an allergy, or whatever. Each child is also born with some protective factors, such as high intelligence, good physical coordination, an easy temperament, or a lovely smile, that tend to make her more resilient in the face of stress.

Environmental factors—Inborn vulnerabilities and protective factors interact with the child's environment, so the same environment can have quite different effects, depending

on the qualities the child brings to the interaction. For example, a child with a number of inborn protective factors who is growing up in a poor environment may do quite well because she can find and take advantage of all the stimulation and opportunities available. Similarly, a child with one or more inborn vulnerabilities may do quite well in a highly supportive environment in which parents help the child overcome or cope with her vulnerabilities.

The "double whammy"—being a vulnerable child in a poor environment—leads to really poor outcomes for the child (Horowitz, 1990). Either of these two negative conditions alone—a vulnerable child or a poor environment—can be overcome. However, inborn vulnerabilities cause a child to be particularly sensitive to the effects of an unsupportive environment.

Cultural factors—The characteristics of the larger society in which a child's family and neighborhood are embedded influence vulnerability and resilience as well. The term *culture* has no commonly agreed-on definition, but in essence it describes some system of meanings and customs, including values, attitudes, goals, laws, beliefs, moral guidelines, and physical artifacts of various kinds, such as tools, forms of dwellings, and the like. Furthermore, to be called a culture, a system of meanings and customs must be shared by some identifiable group, whether that group is a subsection of some population or a larger unit, and it must be transmitted from one generation of that group to the next (Betancourt & Lopez, 1993; Cole, 1992). Culture shapes not only the development of individuals but also ideas about what normal development is.

For example, researchers interested in middle and late adulthood often study retirement: why people retire, how retirement affects their health, and so on. But their findings do not apply to older adults in nonindustrialized cultures, where adults gradually shift from one kind of work to another as they get older rather than give up work altogether and enter a new phase of life called "retirement." Consequently, developmentalists must be aware that retirement-related phenomena do not constitute universal changes. Instead, they represent developmental experiences that are culturally specific.

Gender influences—One final aspect of the context within which an individual's development occurs involves gender. Two individuals can be quite similar with regard to their individual characteristics and the environment within which they grow up. However, if one is female and the other male, they will experience the interaction between their characteristics and their environment differently. For example, the effects of the earliness or lateness with which a child goes through puberty depend on gender. Thus, early and late puberty have different meanings for boys and girls.

1.3: Research Methods

The easiest way to understand research methods is to look at a specific question and the alternative ways we might answer it. For example, older adults frequently complain that they have more trouble remembering people's names than they did when they were younger. Suppose we wanted to find out whether memory really declines with age. How would we go about answering this question?

By the end of this module, you will be able to:

1.3.1 **Identify the goals that researchers of human development try to achieve**

1.3.2 **Contrast the advantages and disadvantages of each descriptive method**

1.3.3 **Explain the primary advantage of the experimental method over descriptive methods**

1.3.1: The Goals of Developmental Science

OBJECTIVE: **Identify the goals that researchers of human development try to achieve**

Think back to the observation that older adults frequently complain that they have more trouble remembering people's names than they did when they were younger. Studying this observation scientifically would require that we approach it in steps. The first step is to estimate how many older adults actually experience memory problems of this kind and how such problems affect their everyday lives. Next, we would probably speculate about why it happens. Our speculations would then guide our observations in a way that would tell us how accurate our speculations are. Finally, if our speculations turned out to have some validity, we might try to use them to help an older adult overcome such problems. As you will see, each of these steps represents one of the four goals that guide developmental science.

Goals of Developmental Science

Researchers who study human development use the scientific method to achieve four goals: to describe, to explain, to predict, and to influence human development from conception to death.

To describe—To *describe* development is simply to state what happens. In attempting to describe human development, for example, we might make a descriptive statement such as "Older adults make more memory errors than young and middle-aged adults." To test whether this statement meets its descriptive goal, we could simply measure memory function in adults of various ages.

To explain—*Explaining* development involves telling why a particular event occurs. To generate explanations,

No Easy Answers

It Depends . . .

One of the most important things you can learn about research is that the answers to many of the practical questions people ask about development begin with "It depends." For example, when a parent discovers her son has been molested by a neighbor, she wants to know how the abuse will affect him in the future. But developmental psychologists don't have a concrete answer. They can tell the mother that the overwhelming majority of traumatized children show no long-term effects. They can also analyze the child and his particular situation and make an educated guess about what might happen in the future. In other words, the long-term outcomes depend on a variety of variables: how long the abuse lasted, at what age it began, the child's personality, the way the parents handled the situation when they learned of the abuse, and so on.

To further complicate matters, all the relevant variables interact with one another. For example, counseling might benefit an outgoing child but might be ineffective for a shy child who tends to keep his feelings to himself. Conversely, art therapy, a strategy that encourages children to express their feelings in drawings, might be effective with a shy child but have little impact on one who is outgoing. Because of such complexities, developmentalists can't tell the mother what she wants to hear: that if she follows a certain formula, her child will turn out fine.

developmentalists rely on *theories*—sets of statements that propose general principles of development. Students often say that they hate reading about theories; they just want the facts. However, theories are important because they help us look at facts from different perspectives. For example, "Older adults make more memory mistakes because of changes in the brain that happen as people get older" is a statement that attempts to explain the fact of age-related memory decline from a biological perspective. Alternatively, we could explain memory decline from an experiential perspective and hypothesize that memory function declines with age because older adults don't get as much memory practice as younger adults do.

To predict—Useful theories produce *predictions* or *hypotheses*, that researchers can test, such as "If changes in the brain cause declines in memory function, then elderly adults whose brains show the most change should also make the greatest number of memory errors." To test this hypothesis, we would have to measure some aspects of brain structure or function as well as memory function. Then we would have to find a way to relate one to the other. Alternatively, we could test the experiential explanation by comparing the memories of older adults who presumably get the most memory practice, such as those who are still working, to the memories of those who get less practice. If the working adults do better on tests of memory, the experiential perspective gains support. Moreover, if both the biological and the experiential hypotheses are supported by research, we have far more insight into age-related memory decline than we would have from either kind of hypothesis alone. In this way, theories add tremendous depth to psychologists' understanding of the facts of human development and provide them with information they can use to influence development.

To influence—Developmental scientists hope to use their findings to *influence* developmental outcomes. Let's say, for example, that an older adult is diagnosed with a condition that can affect the brain, such as a stroke. If we know that brain function and memory are related, we can use tests of memory to make judgments about how much the stroke has damaged the patient's brain. In addition, because developmental scientists know that experience affects memory, they can design training programs that occupational therapists can implement to help the patient recover memory functions that have been impaired by the stroke (see *No Easy Answers*).

WRITING PROMPT

Consider This—"It Depends" Applied to Parental Divorce

There are many situations in which parents would like to have specific, research-supported guidance from developmentalists that would ensure their children's well-being. For instance, parents who divorce are usually concerned about the effects on their children. Think of at least five variables that might affect how a child will respond to her parents' divorce. List and describe the variables. Read over your list, and reflect on the complexities involved in predicting developmental outcomes.

The response entered here will appear in the performance dashboard and can be viewed by your instructor.

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1.3.2: Descriptive Methods

OBJECTIVE: Contrast the advantages and disadvantages of each descriptive method

A researcher who is interested in age and memory ability must decide how to go about finding relationships between variables. To developmentalists, *variables* are characteristics that vary from person to person, such as physical size, intelligence, and personality. When two or more variables vary together, there is some kind of relationship between them. The hypothesis that memory declines with age

involves two variables—memory and age—and suggests a relationship between them.

Descriptive Methods

Developmental scientists use several *descriptive methods* to define and characterize variables and associations among them.

Naturalistic observation—When psychologists use *naturalistic observation* as a research method, they observe people in their normal environments. For instance, to find out more about memory in older adults, a researcher could observe older adults in their homes or workplaces. Such studies provide developmentalists with information about psychological processes in everyday contexts.

The weakness of naturalistic observation, however, is observer bias. For example, if the researcher who is observing older adults is convinced that most of them have poor memories, he is likely to ignore any behavior that goes against this view. Because of observer bias, naturalistic observation studies often use "blind" observers who don't know what the research is about. In most cases, for the sake of accuracy, researchers use two or more observers so that the observations of each observer can be checked against those of the other(s).

Naturalistic observation studies are limited in the extent to which the results can be generalized. In addition, naturalistic observation studies are very time-consuming. They must be repeated in a variety of settings so that researchers can be sure people's behavior reflects development and not the influences of a specific environment.

Case studies—A *case study* is an in-depth examination of a single individual. To test the hypothesis about memory and age, we could use a case study comparing one individual's scores on tests of memory in early and late adulthood. Such a study might tell us a lot about the stability or instability of memory in the individual studied, but we wouldn't know if our findings applied to others.

Still, case studies are extremely useful in making decisions about individuals. For example, to find out whether a child has an intellectual disability, a psychologist would conduct an extensive case study involving tests, interviews of the child's parents, behavioral observations, and so on. Case studies are also frequently the basis of important hypotheses about unusual developmental events, such as head injuries and strokes.

Laboratory observation—*Laboratory observation* differs from naturalistic observation in that the researcher exerts some degree of control over the environment. Suppose, for instance, that you volunteer to participate in a study in which you will have to take a computerized intelligence test. You go to the computer laboratory where the study will take place, and a researcher carrying a folder marked "Test Key" sits down with you in front of a computer. As she begins to explain the test's instructions, another person comes to the door and tells her that she must go to another room to take an important phone call. In her haste to leave, the researcher leaves the folder on the table next to the computer. A hidden video camera records your behavior while the researcher is out of the room. (Do you think you would peek?) When the researcher returns, you complete the test that you believed was the purpose of the study. Later, the researcher and her colleagues will analyze the tapes of participants' responses to determine the frequency with which cheating occurs under such conditions. (Research ethics also requires that they inform you of the deceptive aspects of their study, as you will learn later.) As you can see, observing cheating behavior under controlled conditions offers many advantages over trying to identify and track it in an actual classroom.

Surveys—Have you ever been questioned about which brand of soda you prefer or which candidate you plan to vote for in the next election? If so, then you have participated in a *survey*, a study in which researchers use interviews and/or questionnaires to collect data about attitudes, interests, values, and various kinds of behaviors. Surveys allow researchers to quickly gather information. They can also be used to track changes over time.

The value of any survey depends entirely on how representative the sample of participants is of the researcher's population of interest. A *population* is the entire group about which the researcher is attempting to learn something; a *sample* is a subset of that group. Thus, when voters are asked which candidate they prefer, the population of interest is all the people who will vote in the election. The sample includes only the people who are actually questioned by the researchers. If the sample is not a *representative sample*—that is, if it does not include the same proportions of males, females, Democrats, Republicans, and so forth, as the actual voting population does—then the survey's results will be inaccurate. Moreover, survey participants are sometimes influenced by the perceived *social desirability* of their answers. If they think that they should answer a question in a certain way to please the

researchers, then they may not give truthful answers. Thus, whenever you hear a news report about a survey, you should remember that to judge whether the survey is valid, you need to know something about how the sample of participants was recruited and how the questions were asked.

Correlations—A *correlation* is a relationship between two variables that can be expressed as a number ranging from –1.00 to +1.00. A zero correlation indicates that there is no relationship between the two variables. A positive correlation means that high scores on one variable are usually accompanied by high scores on the other. The closer a positive correlation is to +1.00, the stronger the relationship between the variables. Two variables that change in opposite directions have a negative correlation, and the nearer the correlation is to –1.00, the more strongly the two are connected.

To understand positive and negative correlations, think about the relationship between temperature and the use of air conditioners and heaters. Temperature and air conditioner use are positively correlated. As the temperature climbs, the number of air conditioners in use goes up. Conversely, temperature and heater use are negatively correlated. As the temperature decreases, the number of heaters in use goes up.

If we wanted to know whether age is related to memory, we could use a correlation. We would need to administer memory tests to adults of varying ages and calculate the correlation between test scores and ages. If we found a positive correlation between age and the number of memory errors people made—if older people made more errors—then we could say that our hypothesis had been supported. Conversely, if we found a negative correlation—if older people made fewer errors—then we would have to conclude that our hypothesis had not been supported.

Useful as they are, though, correlations have a major limitation: They do not indicate causal relationships. For example, even a high positive correlation between memory errors and age would tell us only that memory performance and age are connected in some way. It wouldn't tell us what caused the connection. It might be that younger adults understand the test instructions (see *Developmental Science at Home*).

WRITING PROMPT

Consider This—Evaluating Research in the Media

How would you apply the ideas in this discussion to interpreting a news report about a study "proving" that being raised by a single parent is harmful to young children? If such a study were reported, what variables other than single parenthood itself might explain the results?

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Developmental Science at Home: Correlation Versus Causation

There are many everyday examples of the difference between correlation and causation. Here is one.

Situation	Three-year-old Mina loves to play with the other children at her day-care center and can't wait to get to "school" each morning. But her mother, Christina, is worried about reports that she has heard on the news about the possible harmful effects of day care on children's development. Like most other parents, Christina wants what is best for her child, but she also needs to work. She wonders how to find a balance between Mina's need for quality time with Mom and her family's economic needs.
Explanation	When research results are at variance with our personal values or with the decisions we have made about our lives, many of us respond by saying either "I agree with that study" or "I don't agree with that study." A better approach is to learn to use knowledge of research methods to become a "critical consumer" of research.
Application	Suppose Christina is a friend of yours, and knowing that you are taking a course in child development, she asks you for advice regarding the news report about which she is concerned. After reading this chapter, you should know that only an experiment can produce such proof. To demonstrate that day care causes behavior problems, researchers would have to randomly assign infants to day-care and home-care groups. You should be aware that such a study would be unethical and, therefore, impossible. Thus, a newspaper report may claim that a study showing a correlation between day care and behavior problems demonstrates that one causes the other—but you, the critical consumer, should know better. Once you make Christina aware of the scientific merits of the study, she can move forward with balancing such findings with her own values and priorities to make decisions about how she wants to raise her children.

1.3.3: The Experimental Method

OBJECTIVE: Explain the primary advantage of the experimental method over descriptive methods

An *experiment* is a study that tests a causal hypothesis. Suppose, for example, that we think age differences in memory are caused by older adults' failure to use memory techniques, such as repeating a list mentally to remember it. We could test this hypothesis by providing memory-technique training to one group of older adults and no training to another group. If the trained adults got higher scores on memory tests than they did before training and the no-training group showed no change, we could claim support for our hypothesis.

A key feature of an experiment is random assignment of participants to one of two or more groups. In other words, chance determines which group each participant is placed in. The groups then have equal amounts of variation with respect to characteristics such as intelligence, personality traits, height, weight, and health status.

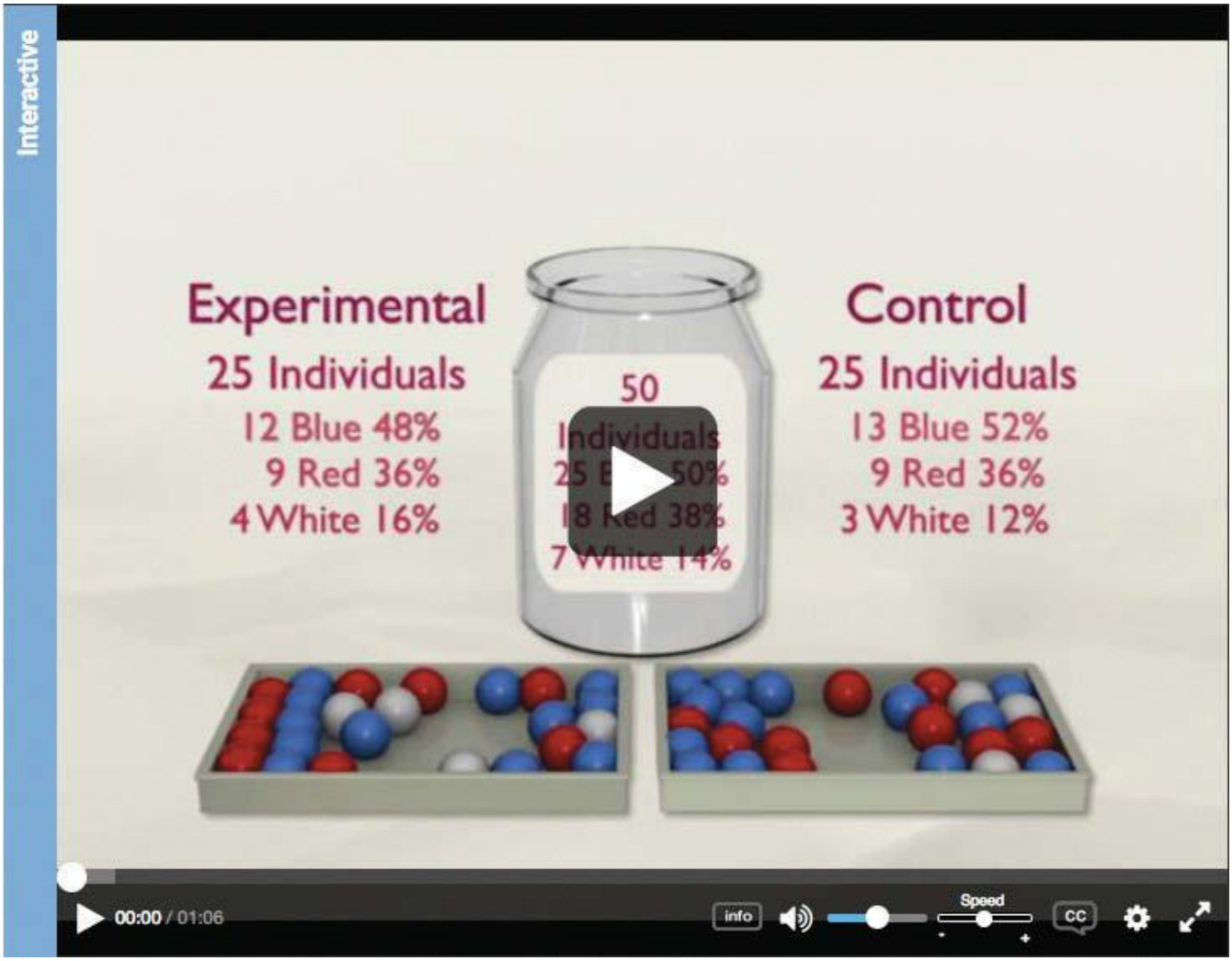
The Limitations of the Experimental Method

Experiments are essential for understanding many aspects of development. But two special problems in studying child or adult development limit the use of experiments.

Ethics	Many of the questions researchers want to answer have to do with the effects of particular unpleasant or stressful experiences on individuals—abuse, prenatal influences of alcohol or tobacco, low birth weight, poverty, unemployment, widowhood. For obvious ethical reasons, researchers cannot manipulate these variables. For example, they cannot ask one set of pregnant women to have two alcohol drinks a day and others to have none. To study the effects of such experiences, they must rely on nonexperimental methods, such as correlations.
Random Assignment	The independent variable that developmentalists are often most interested in is age itself, and researchers cannot assign participants randomly to age groups. They can compare 4-year-olds and 6-year-olds in their approach to some particular task, such as searching for a lost object, but the children differ in a host of ways other than their ages. Older children have had more and different experiences. Thus, unlike psychologists studying other aspects of behavior, developmental psychologists cannot systematically manipulate many of the variables they are most interested in. To get around this problem, researchers can use any one of a series of strategies, sometimes called *quasi-experiments*, in which they compare groups without assigning the participants randomly. Quasi-experiments are studies in which researchers compare members of naturally occurring groups that differ in some dimension of interest, such as children whose parents choose to place them in day-care programs and children whose parents keep them at home. Such comparisons have built-in problems because groups that differ in one way are likely to differ in other ways as well. Compared with parents who keep their children at home, parents who place their children in day care are generally poorer, are more likely to be single parents, and tend to have different values or religious backgrounds. If researchers find that the two groups of children differ in some fashion, is it because they have spent their days in different environments or because of these other differences in their families? Researchers can make such comparisons a bit easier if they select comparison groups that are matched on those variables the researchers think might matter, such as income, marital status, or religion. But a quasi-experiment, by its very nature, will always yield more ambiguous results than will a fully controlled experiment.

Watch THE EXPERIMENTAL METHOD

The experimental method is critical to the study of development because it is the only method that can yield conclusions about cause and effect relationships. It has several important elements.



Consequently, none of these variables can affect the outcome of the experiment.

Participants in the *experimental group* receive the treatment the experimenter thinks will produce a particular effect, while those in the *control group* receive either no special treatment or a neutral treatment. The presumed causal element in the experiment is called the *independent variable*, and the characteristic or behavior that the independent variable is expected to affect is called the *dependent variable*.

In a memory-technique training experiment like the one suggested above, the group that receives the memory training is the experimental group, and the one that receives no instruction is the control group. Memory-technique training is the variable that we, the experimenters, think will cause differences in memory function, so it is the independent variable. Performance on memory tests is the variable we are using to measure the effect of the memory technique training. Therefore, performance on memory tests is the dependent variable.

WRITING PROMPT

Consider This—Experimental Studies of Physical Punishment

How do practical and ethical considerations limit researchers' ability to study the effects of physical punishment on children's development? That is, would it be possible, in a practical sense, to randomly assign children to parents who physically punish them and parents who punish in other ways? If so, would there be ethical concerns about such a study? How could the quasi-experimental method be used to answer questions about the effects of punishment?

The response entered here will appear in the performance dashboard and can be viewed by your instructor.

Submit

1.4: Research Designs

In addition to deciding which method to use, developmental scientists must also determine how to incorporate age into their research design. They must also take cultural differences into account. Finally, ethical standards govern research examining age-related changes.

By the end of this module, you will be able to:

1.4.1 **Compare cross-sectional, longitudinal, and sequential designs**

1.4.2 **Explain the importance of cross-cultural research to the study of human development**

1.4.3 **Outline the ethical standards that developmental researchers must follow**

1.4.1: Cross-Sectional, Longitudinal, and Sequential Designs

OBJECTIVE: **Compare cross-sectional, longitudinal, and sequential designs**

If you wanted to study age-related changes in behavior, how would you go about it? Essentially, you would have two options: compare individuals of different ages or study a group of individuals at different points in their lives. These strategies are quite similar to those that developmental scientists use.

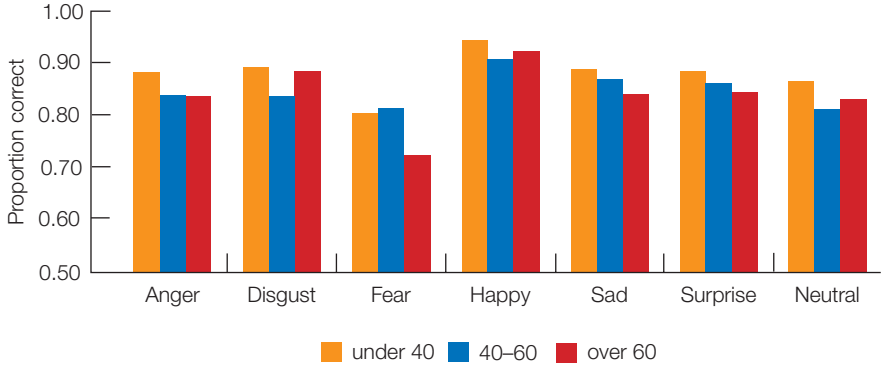
Strategies to Incorporate Age Into Research Designs

There are three general strategies for incorporating age into a research design: (1) study different groups of people of different ages, using a *cross-sectional design*; (2) study the same people over a period of time, using a *longitudinal design*; (3) combine cross-sectional and longitudinal designs in some fashion, in a *sequential design*.

Cross-sectional designs—The figure below is a good example of a cross-sectional study in which researchers

An Example of a Cross-Sectional Design

In this cross-sectional study, researchers compared the ability to recognize various kinds of facial expressions across young adult, middle-aged adult, and older adult groups. This study is cross-sectional because it measured the same variable at the same time in people of different ages.



SOURCE: Isaacowitz et al., 2007.

examined age differences in people's ability to recognize facial expressions. As you can see, younger adults outperformed those who were older in identifying anger. If these findings fit the researchers' hypothesis, they might be tempted to conclude that the ability to identify anger in facial expressions declines with age. But we cannot say this conclusively based on the cross-sectional data because these adults differ in both age and cohort. Thus, the age differences in this study might reflect, for example, differences in education and not changes linked to age or development. Influences of this kind lead to *cohort effects*, findings that result from historical factors to which one age group in a cross-sectional study has been exposed.

Furthermore, cross-sectional studies cannot tell us anything about sequences of change with age or about the consistency of individual behavior over time because each participant is tested only once. Still, cross-sectional research is very useful because it can be done relatively quickly and can reveal possible age differences or age changes.

Longitudinal designs—Longitudinal designs seem to solve the problems presented by cross-sectional designs because they follow the same individuals over a period of time. Such studies allow psychologists to look at sequences of change and at individual consistency or inconsistency over time. And because longitudinal studies compare performance by the same people at different ages, they get around the obvious cohort problem.

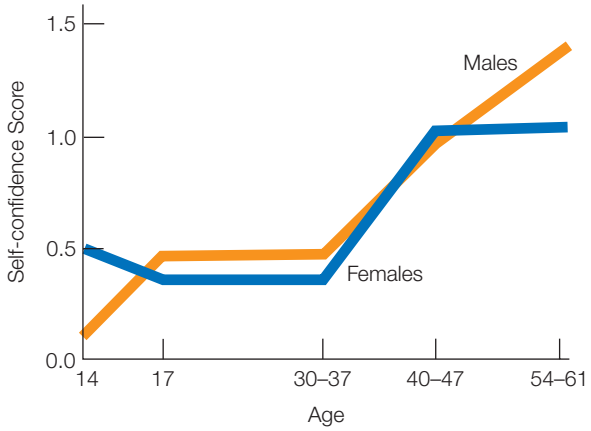
A few well-known longitudinal studies have followed groups of children into adulthood or groups of adults from early to late adult life. One of the most famous of these is the Berkeley/Oakland Growth Study (see the figure; Eichorn, Clausen, Haan, Honzik, & Mussen, 1981). Perhaps equally famous is the Grant study of Harvard men (Vaillant, 1977). This study followed several hundred men from age 18 until they were in their 60s. Such studies are extremely important in the study of human development.

Despite their importance, longitudinal designs have several major difficulties. One is that they typically involve giving each participant the same tests again and again. Over time, people learn how to take the tests. Such *practice effects* may distort the measurement of any underlying developmental changes.

Another significant problem is that some participants drop out, die, or move away. As a general rule, the healthiest and best educated participants are most likely to stick it out, and that fact biases the results, particularly if the study covers the final decades of life. Each succeeding set of test results comes from proportionately more and more healthy adults, which may give the appearance of less change or less decline than actually exists.

An Example of a Longitudinal Design

The results shown in this graph are from the classic study in Berkeley and Oakland, California, of a group of participants born either in 1920 or in 1928. They were tested frequently in childhood and adolescence, as well as three times in adulthood. Here you can see the sharp rise in self-confidence that occurred for both men and women in this group in their 30s—a pattern that may reflect a shared personality change, triggered by the common experiences of the social clock.



SOURCE: Haan et al., 1986.

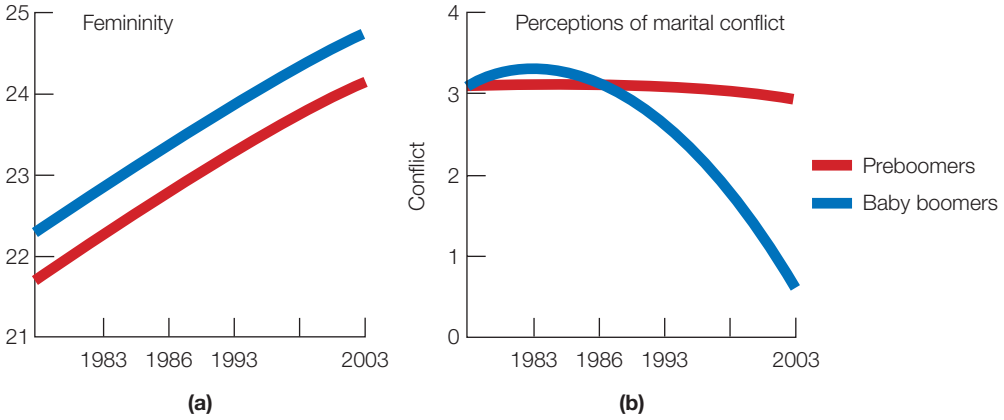
Longitudinal studies also don't really get around the cohort problem. For example, both the Grant study and the Berkeley/Oakland Growth Study observed and tested participants born in the same decade (1918–1928). Even if both studies showed the same pattern of change with age, we wouldn't know whether the pattern was unique to that cohort or reflected more basic developmental changes that would be observed in other cultures and other cohorts.

Sequential designs—One way to avoid the shortcomings of both cross-sectional and longitudinal designs is to use a sequential design. One group might include 25- to 30-year-olds and the other 30- to 35-year-olds. We would then test each group several times over a number of years. In a sequential study, each testing point beyond the initial one allows researchers to make two types of comparisons. Age-group comparisons provide them with the same kind of information as a cross-sectional study. Comparison of each group to itself at an earlier testing point allows the researchers to collect longitudinal evidence at the same time.

Sequential designs also allow for comparisons of cohorts. If both groups demonstrate similar age-related patterns of change over time, researchers can conclude that the developmental pattern is not specific to any particular cohort. Finding the same developmental pattern in two cohorts provides psychologists with stronger evidence than either cross-sectional or longitudinal data alone. For example, the following figure illustrates a sequential study in which Baby Boomer women who were born between

An Example of a Sequential Design

These findings illustrate the strengths of the cross-sequential design. Researchers tested more than 700 women in 1983, 1986, 1993, and 2003. Among the 700 were some women who were born during the "Baby Boom" (1946 to 1964) and some who were born earlier ("Preboomers"). Panel (a) shows that the tendency of women in both cohorts to describe themselves as "feminine" increased across all four testing points, but (b) shows that women's perceptions of conflict within their marriages remained stable across age for Preboomers but declined dramatically among Baby Boomers.



SOURCE: Kasen et al., 2006.

1946 and 1964 were compared to women born during the 1930s and early 1940s. Across four testing points, the two groups' self-perceptions of femininity increased in parallel fashion, suggesting a true developmental change. By contrast, the relationship between age and reported frequency of marital conflict was different in each cohort, a finding which suggests that historical factors may have caused the two groups to vary in either actual marital conflict or in their perceptions of what constitutes conflict.

1.4.2: Cross-Cultural Research

OBJECTIVE: Explain the importance of cross-cultural research to the study of human development

Increasingly common in human development are studies comparing cultures or contexts, a task that researchers approach in several ways. For example, an *ethnography* is a detailed description of a single culture or context, based on extensive observation. Often the observer lives in the culture or context for a period of time, perhaps as long as several years. Each ethnographic study is intended to stand alone, although sometimes we can combine information from several different studies to see whether similar developmental patterns exist in the various cultures or contexts.

Alternatively, investigators may attempt to compare two or more cultures directly, by testing children or adults in each of the cultures with the same or comparable measures. Sometimes this involves comparing groups from different countries. Sometimes the comparisons are between subcultures within the same country; for example, increasingly common in the United States is research involving comparisons of children or adults living in different ethnic groups or communities, such as African Americans, Hispanic Americans, Asian Americans, and European Americans.

Cross-cultural research is important to the study of human development for two reasons. First, developmentalists want to identify universal changes—that is, predictable events or processes experienced by individuals in all cultures. Developmentalists don't want to make a general statement about development—such as "Memory declines with age"—if the phenomenon in question happens only

Ethnographers often interact in everyday settings with members of the cultures they study.

Table 1.2 Review of Research Methods and Designs

Each research method has advantages and disadvantages. Likewise, each research design has advantages and disadvantages.

Method	Description	Advantages	Disadvantages
Naturalistic observation	Observation of behavior in natural settings	Participants behave naturally	Researchers' expectations can influence results; little control over conditions
Case studies	In-depth study of one or a few individuals using observation, interviews, or psychological testing	In-depth information; important in the study of unusual events	Results may not generalize beyond the case that is studied; time-consuming; subject to misinterpretation
Surveys	Interviews, questionnaires used to gather information quickly	Accurate information about large groups; track changes	Validity limited by sample representativeness; responses influenced by questions, social desirability
Correlational studies	Determination of mathematical relationship between two variables	Assess strength and direction of relationships	Cannot demonstrate cause and effect
Experiments	Random assignment of participants to control and experimental groups; manipulation of independent (causal) variable	Identification of cause–effect relationships	Results may not generalize to nonresearch settings; many variables cannot be studied in experiments
Cross-sectional designs	Participants of different ages studied at one time	Quick access to data about age differences	Ignores individual differences; cohort effects
Longitudinal designs	Participants in one group studied several times	Track developmental changes in individuals and groups	Time-consuming; findings may apply only to the group that is studied
Sequential designs	Study that combines both longitudinal and cross-sectional components	Cross-sectional and longitudinal data relevant to the same hypothesis	Time-consuming; different attrition rates across groups
Cross-cultural research	Research that either describes culture or includes culture as a variable	Information about universality and culture specificity of age-related changes	Time-consuming; difficult to construct tests and methods that are equally valid in different cultures

in certain cultures. Without cross-cultural research, it is impossible to know whether studies involving North Americans and Europeans apply to people in other parts of the world.

Second, one of the goals of developmentalists is to produce findings that can be used to improve people's lives. Cross-cultural research is critical to this goal as well. For example, developmentalists know that children in cultures that emphasize the community more than the individual are more cooperative than children in more individualistic cultures. However, to use this information to help all children learn to cooperate, they need to know exactly how adults in such cultures teach their children to be cooperative. Cross-cultural research helps developmentalists identify specific variables that explain cultural differences. See Table 1.2 for a comparison of various research methods and designs.

1.4.3: Research Ethics

OBJECTIVE: Outline the ethical standards that developmental researchers must follow

Research ethics are the guidelines researchers follow to protect the rights of animals used in research and humans who participate in studies. Ethical guidelines are published by professional organizations such as the American Psychological Association, the American Educational Research Association, and the Society for Research in Child Development. Guidelines for animal research include the requirement that animals be protected from unnecessary pain and suffering. Furthermore, researchers must demonstrate that the potential benefits of their studies to either human or animal populations will be greater than any potential harm to animal subjects.

Concerns Addressed by Ethical Guidelines for Researchers

Ethical standards for research involving human participants address several major concerns. Universities, private foundations, and government agencies have review committees that make sure all research the institution sponsors is ethical.

Protection from harm—It is unethical to do research that may cause participants permanent physical or psychological harm. Moreover, if the possibility of temporary harm exists, researchers must provide participants with some way of repairing the damage. For example, if the study will remind subjects of unpleasant experiences, such as rape, researchers must provide them with counseling.

Informed consent—Researchers must inform participants of any possible harm and have them sign a consent form stating that they are aware of the risks of participating. In order for children to participate in studies, their parents must give permission after the researcher has informed them of possible risks. Children older than 7 must also give their own consent. If the research takes place in a school or day-care center, an administrator representing the institution

Watch RESEARCH ETHICS

Researchers follow ethical guidelines to ensure that their studies cause no harm to human participants or animal subjects. These guidelines also address issues of informed consent, confidentiality, knowledge of results, and deception.

must consent. In addition, both children and adults have the right to discontinue participation in a study at any time. Researchers are obligated to explain this right to children in language they can understand.

Confidentiality—Participants have the right to confidentiality. Researchers must keep the identities of participants confidential and must report their data in such a way that no particular piece of information can be associated with any specific participant. The exception to confidentiality is when children reveal to researchers that they have been abused in any way by an adult. In most states, all citizens are required to report suspected cases of child abuse.

Knowledge of results—Participants, their parents, and the administrators of institutions in which research takes place have a right to a written summary of a study's results.

Deception—If deception has been a necessary part of a study, participants have the right to be informed about the deception as soon as the study is over.

WRITING PROMPT

Consider This—Deception in Research

What are the pros and cons of allowing researchers to deceive participants about the purpose of a study? What are the pros and cons of requiring researchers to inform participants that they have been deceived after a study is over?

The response entered here will appear in the performance dashboard and can be viewed by your instructor.

Submit

Summary: Basic Concepts and Methods

1.1 An Introduction to Human Development

- The philosophical concepts of original sin, innate goodness, and the blank slate have influenced Western ideas about human development. Darwin studied child development to gain insight into evolution. G. Stanley Hall published the first scientific study of children and introduced the concept of norms.
- Today's developmentalists recognize that change happens throughout life. The lifespan perspective includes the notions that plasticity exists throughout the lifespan, that information from a variety of disciplines is needed to understand development, and that development occurs in multiple contexts.
- Theorists and researchers group age-related changes into three broad categories: the physical, cognitive, and social domains. They also refer to the major periods of development: prenatal, infancy, early childhood, middle childhood, adolescence, early adulthood, middle adulthood, and late adulthood.

1.2 Key Issues in the Study of Human Development

- Historically, developmentalists have debated nature versus nurture, but now they believe that every developmental change is a product of both.
- The continuity–discontinuity debate centers on whether change is a matter of amount or degree (continuous, quantitative change) or a matter of type or kind (discontinuous, qualitative change). Some aspects of development, such as height, are continuous and change quantitatively, while others, such as reproductive capacity, are discontinuous and change qualitatively. Developmental theorists who focus on qualitative changes usually propose explanations of psychological development that include stages.
- Normative age-graded changes are those that are experienced by all human beings. Normative history-graded changes are common to individuals who have similar cultural and historical experiences. Genetic factors and the timing of experiences are two important causes of nonnormative changes in development.
- The contexts of development include both individual variables and the settings in which development occurs (e.g., family, neighborhood, culture). Individual traits and contexts interact in complex ways to influence development.

1.3 Research Methods

- Developmental psychologists use scientific methods to describe, explain, predict, and influence age-related changes and individual differences.
- Case studies and naturalistic observation provide a lot of important information, but it usually isn't generalizable to other individuals or groups. Correlational studies measure relationships between variables. They can be done quickly, and the information they yield is more generalizable than that from case studies or naturalistic observation.
- To test causal hypotheses, it is necessary to use experimental designs in which participants are assigned randomly to experimental or control groups.

1.4 Research Designs

- In cross-sectional studies, separate age groups are each tested once. In longitudinal designs, the same individuals are tested repeatedly over time. Sequential designs combine cross-sectional and longitudinal comparisons.
- Cross-cultural research helps developmentalists identify universal factors and cultural variables that affect development.
- Ethical principles governing psychological research include protection from harm, informed consent, confidentiality, knowledge of results, and protection from deception.

SHARED WRITING

Research and Social Policies

Decide which of these two statements you most agree with, and think about how you would defend your position:

- Relevant research findings should be the most important factor in the formation of social policies.
- Research findings represent only one of several sources of information that ought to be considered in the formation of social policies.

Review and comment on the positions taken by your classmates.

A minimum number of characters is required to post and earn points. After posting, your response can be viewed by your class and instructor, and you can participate in the class discussion.

Post

0 characters | 140 minimum

Chapter 2
Theories of Development

Chapter Module Outline

When 7-month-old Zeke started crawling, his parents quickly learned that they would have to begin paying a lot more attention to what was on their floors. To their horror, Zeke discovered a dead cockroach midway through his first solo excursion across the living room. Before they could snatch it away, Zeke crushed the bug's dried-out body in his hand. He was just about to start licking the insect's shattered remains out of his palm when his mother scooped him up and carried him off to the kitchen sink for a thorough scrubbing of the contaminated appendage. What is it about infants that makes them want to put things, even disgusting and potentially harmful things like dead insects, into their mouths?

Developmental psychologists use theories to formulate hypotheses, or testable answers, to "why" questions about behaviors such as these. At the broadest level are three very broad families of theories—*psychoanalytic theory*, *learning theory*, and *cognitive-developmental theory*. Theories that deal with the biological foundations of development and interactions between these and the environment extend developmentalists' understanding of age-related changes beyond the explanations that the three major theories provide. Thus, the most comprehensive explanations of developmental phenomena often include ideas from the psychoanalytic, learning, and cognitive approaches as well as those derived from biological and contextual theories.

This chapter will introduce you to the three major families of theories. These theories will come up again and again as you make your way through this text. This chapter will also acquaint you with other theoretical trends in the field of human development, and you will learn how developmental psychologists compare theories.

Why do boys and girls seem to develop differently? Developmental psychologists use theories to propose answers to such "why" questions. Theoretical explanations generate testable hypotheses, thereby contributing to our understanding of human development.

2.1: Psychoanalytic Theories

One way of explaining why babies often put things in their mouths would be to suggest that infants derive more physical pleasure from mouthing objects than from manipulating them with other parts of their bodies. Such an approach would most likely belong to the family of *psychoanalytic theories*, a school of thought that originated with Viennese physician Sigmund Freud (1856–1939). Psychoanalytic theorists believe that developmental change happens because internal drives and emotions influence behavior.

By the end of this module, you will be able to:

2.1.1 **Identify the main ideas of Sigmund Freud's psychosexual theory**

2.1.2 **Explain the significance of psychosocial conflicts in Erikson's stages of development**

2.1.3 **Assess the strengths and weakness of psychoanalytic theory**

2.1.1: Freud's Psychosexual Theory

OBJECTIVE: Identify the main ideas of Sigmund Freud's psychosexual theory

Freud derived most of his ideas about development from his work with the childhood memories of adults with serious mental disorders. One of his most important conclusions was that behavior is governed by both conscious and unconscious processes. The most basic of these unconscious processes is an internal drive for physical pleasure that Freud called the *libido*. He believed the libido to be the motivating force behind most behavior.

The Three Parts of Personality

Freud also argued that personality has three parts. Each part contributes to personality functioning in a unique way.

The id—The *id* operates at an unconscious level and contains the libido—a person's basic sexual and aggressive impulses, which are present at birth.

The ego—The *ego*, the conscious, thinking part of personality, develops in the first 2 to 3 years of life. One of the ego's jobs is to keep the needs of the id satisfied. For instance, when a person is hungry, the id demands food immediately, and the ego is supposed to find a way to obtain it.

The superego—The *superego*, the portion of the personality that acts as a moral judge, contains the rules of society, and develops near the end of early childhood, at about age 6. Once the superego develops, the ego's task becomes more complex. It must satisfy the id without violating the superego's rules.

The ego is responsible for keeping the three components of personality in balance. According to Freud, a person experiences tension when any of the three components is in conflict with another. For example, if a person is hungry, the id may motivate her to do anything to find food, but the ego—her conscious self—may be unable to find any. Alternatively, food may be available, but the ego may have to violate one of the superego's moral rules to get it. In such cases, the ego may generate *defense mechanisms*—ways of thinking about a situation that reduce anxiety (see *No Easy Answers: The Repressed Memory Controversy*).

No Easy Answers

The Repressed Memory Controversy

Freud claimed that hidden memories of traumatic events suffered in childhood, such as sexual abuse, often lie hidden away, or *repressed*, in a person's unconscious and cause emotional distress that can lead to mental illness. Consequently, Freud thought that the goal of psychotherapy was to uncover such events and help individuals learn to cope with them. Memory researchers have found that some people who were abused as children forget the events for long periods of time, just as Freud predicted. However, most people retain vivid memories of traumatic childhood events (Baddeley, 1998; Lindsay & Read, 1994). Moreover, perpetrators of abuse are more likely to forget the incidents than are their victims (Taylor & Kopelman, 1984).

Memory experts also point out that therapists who suggest the possibility of repressed memories risk creating false memories in their clients' minds (Ceci & Bruck, 1993). However, repression does sometimes occur, and discovery of a repressed memory does sometimes improve a person's mental health. Thus, mental health professionals face a dilemma: Should they ignore the possibility of a repressed memory or risk creating a false one?

Therapists address the dilemma by obtaining training in techniques that can bring out repressed memories but don't directly suggest that such memories exist. For example, when clients believe they have recalled a repressed event, therapists help them look for concrete evidence. In the end, however, both therapist and client should recognize that they must often rely on flawed human judgment to decide whether a "recovered" memory was really repressed or was invented in the client's mind.

WRITING PROMPT

Your Decide—Repressed Memories

With which of these two statements do you most agree? Explain your position.

If I thought that I had recovered a repressed memory of childhood abuse, I would prefer to have a skeptical therapist who would educate me about research findings showing that such memories are rarely forgotten.

If I thought that I had recovered a repressed memory of childhood abuse, I would prefer to have a supportive therapist who would help me search for evidence of the abuse.

The response entered here will appear in the performance dashboard and can be viewed by your instructor.

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Table 2.1 Psychosexual Stages

Freud proposed a series of *psychosexual stages* through which a child moves in a fixed sequence determined by maturation. In each stage, the libido is centered on a different part of the body.

Stage	Approximate Ages	Focus of Libido	Major Developmental Task	Some Characteristics of Adults Fixated at This Stage
Oral	Birth to 1 year	Mouth, lips, tongue	Weaning	Oral behavior, such as smoking and overeating; passivity and gullibility
Anal	1 to 3 years	Anus	Toilet training	Orderliness, obstinacy or messiness, disorganization
Phallic	3 to 6 years	Genitals	Resolving Oedipus/Electra complex	Vanity, recklessness, sexual dysfunction or deviancy
Latency*	6 to 12 years	None	Developing defense mechanisms; identifying with same-sex peers	None
Genital	12 years	Genitals	Achieving mature sexual intimacy	Adults who have successfully integrated earlier stages should emerge with sincere interest in others and mature sexuality

*Freud thought that the latency period is not really a psychosexual stage because libido is not focused on the body during this period; therefore, fixation is impossible.

PSYCHOSEXUAL STAGES Many of Freud's patients had memories of sexual feelings and behavior in childhood. This led Freud to believe that sexual feelings are important to personality development. Based on his patients' childhood memories, Freud proposed a series of *psychosexual stages* through which a child moves in a fixed sequence determined by maturation (see Table 2.1). In each stage, the libido is centered on a different part of the body. In the infant, the focus of the drive for physical pleasure is the mouth; the stage is therefore called the *oral stage*. As maturation progresses, the libido becomes focused on the anus (hence, the *anal stage*), and later on the genitals (the *phallic stage* and eventually the *genital stage*).

Optimum development, according to Freud, requires an environment that will satisfy the unique needs of each period. For example, the infant needs sufficient opportunity for oral stimulation. An inadequate early environment will result in *fixation*, characterized by behaviors that reflect unresolved problems and unmet needs. Thus, as you might guess from looking at the list of stages in Table 2.1, emphasis on the formative role of early experiences is a hallmark of psychoanalytic theories.

Freud's most controversial idea about early childhood is his assertion that children experience sexual attraction to the opposite-sex parent during the phallic stage (ages 3 to 6). Freud borrowed names for this conflict from Greek literature. Oedipus was a male character who was involved in a romantic relationship with his mother. Electra was a female character who had a similar relationship with her father. Thus, for a boy, the Oedipus complex involves a conflict between his affection for his mother and his fear of his father; for a girl, the Electra complex pits her bond with her father against her anxiety over the potential loss of her mother's love. In both genders, the complex is resolved by abandoning the quest to possess the opposite-sex parent in favor of identification with the same-sex parent. In other words, the phallic stage reaches a successful conclusion when boys develop a desire to be like their fathers and when girls begin to view their mothers as role models.

2.1.2: Erikson's Psychosocial Theory

OBJECTIVE: Explain the significance of psychosocial conflicts in Erikson's stages of development

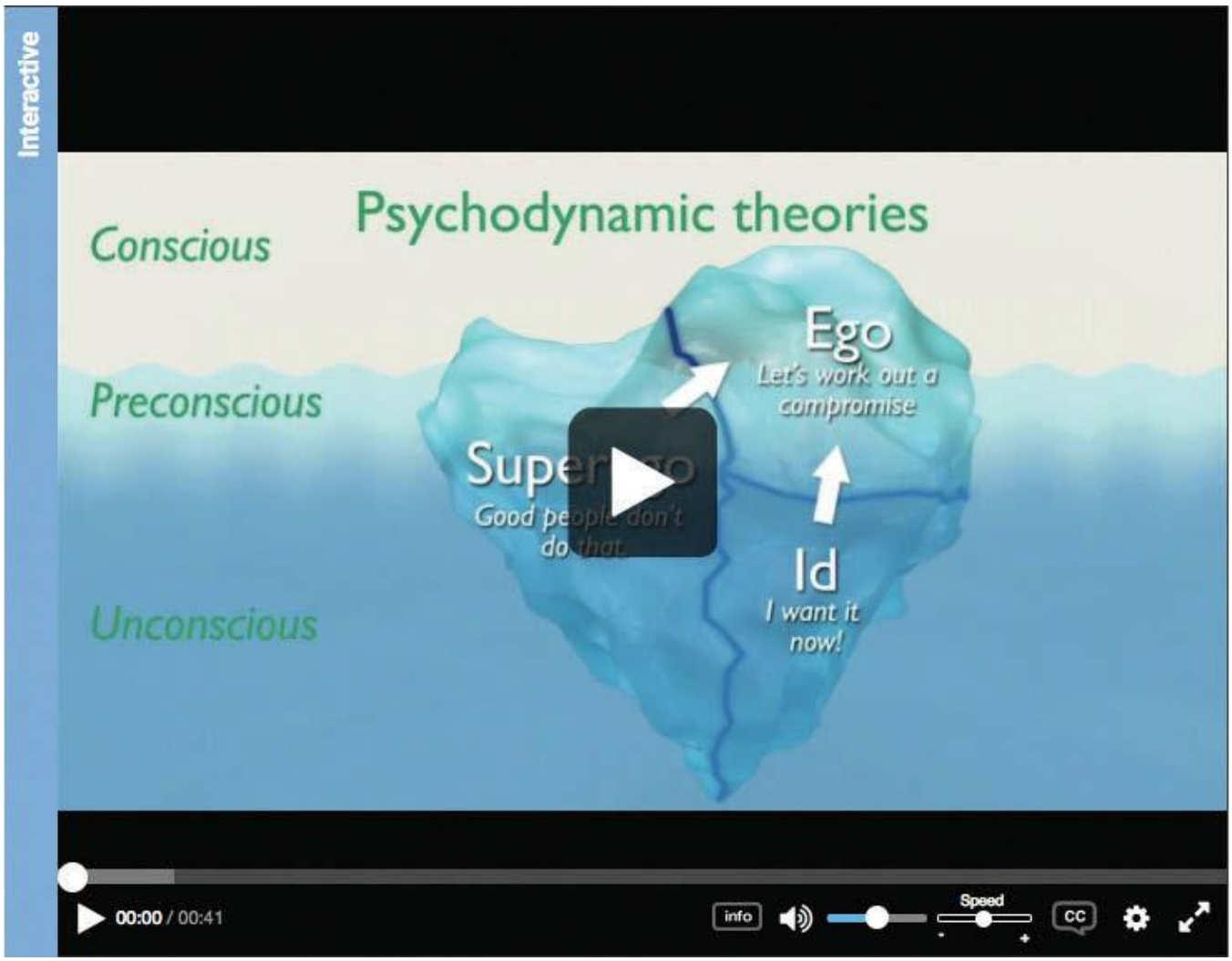
Many of Freud's critics accepted his assertion that unconscious forces influence development, but they questioned his rather gloomy view that childhood trauma nearly always leads to emotional instability in adulthood. Later theorists, known as *neo-Freudians*, proposed ideas that built on the strengths of Freud's theory but tried to avoid its weaknesses.

Erik Erikson (1902–1994) is the neo-Freudian theorist who has had the greatest influence on the study of development (Erikson, 1950, 1980a/1959, 1980a, 1982; Erikson, Erikson, & Kivnick, 1986; Evans, 1969). Erikson thought development resulted from the interaction between internal drives and cultural demands; thus, his theory refers to *psychosocial stages* rather than to psycho*sexual* ones. Furthermore, Erikson thought that development continued through the entire lifespan.

In Erikson's view, to achieve a healthy personality, an individual must successfully resolve a crisis at each of the eight stages of development, or *crises*. The key idea underlying Erikson's theory is that each new crisis is thrust on the developing person because of changes in social demands that accompany changes in age. Moreover, each crisis is defined by a pair of opposing possibilities. Successful resolution of a crisis results in the development of the characteristic on the positive side of the dichotomy. A healthy resolution, however, does not mean moving totally to the positive side. For example, an infant needs to have experienced some mistrust to learn to identify people who are not trustworthy. But healthy development requires

Watch FREUD'S THEORY OF PERSONALITY

Freud argued that unconscious drives, emotions, and conflicts strongly influence personality development. One such drive is the drive for physical pleasure known as the libido. According to Freud, the libido drives individuals to seek pleasure through different parts of the body at different ages.



a favorable ratio of positive to negative (see *Erikson's Eight Psychosocial Crises*).

COMPARING CHILD AND ADULT STAGES OF PSYCHOSEXUAL DEVELOPMENT According to Erikson, the four childhood stages form the foundation of adult personality. The outcome of the first stage, *trust versus mistrust* (birth to 1 year), depends on the reliability of the care and affection infants receive from their primary caretaker. During the second stage, *autonomy versus shame and doubt*, children ages 1 to 3 express their independence. To help children resolve this crisis, caretakers must encourage them to function independently with regard to self-care skills, such as dressing themselves. In the third stage, *initiative versus guilt*, 3- to 6-year-olds begin to develop a sense of social initiative. In order to do so, a child needs opportunities to interact with peers during this stage. During the fourth stage, *industry versus inferiority*, children focus on acquiring culturally valued skills. In order to emerge from this stage with a sense of industry, children need support and encouragement from adults.

Erikson's description of the transition from childhood to adulthood, the *identity versus role confusion* stage, has been particularly influential. He argued that, in order to arrive at a mature sexual and occupational identity, all adolescents must examine their identity and the roles they must occupy. They must achieve an integrated sense of self, of what they want to do and be, and of their appropriate sexual role. The risk is that adolescents will suffer from confusion arising from the profusion of roles opening up to them at this age.

Erikson's adulthood stages are not strongly tied to age. In the first, the young adult builds on the identity established in adolescence to confront the crisis of *intimacy versus isolation*. Erikson hypothesized that an individual's capacity for intimacy is dependent on a positive resolution of the identity crisis (Erikson, 1963). Many young people, Erikson thought, make the mistake of thinking they will find their

Erikson's Eight Psychosocial Crises

According to Erikson, an individual must successfully resolve eight sequential developmental crises. Each crisis can result in the emergence of a positive or negative trait. Successful resolution occurs when an individual reaches the end of a crisis having developed the positive trait with which it is associated.

Crisis: Trust Versus Mistrust	Age: Birth to 1 year Positive characteristic gained: Hope Developmental tasks: learn to trust primary caregiver and in one's own ability to make things happen (secure attachment to caregiver is key)
Crisis: Autonomy Versus Shame and Doubt	Age: 1 to 3 years Positive characteristic gained: Will Developmental tasks: new physical skills lead to demand for more choices, most often seen as saying "no" to caregivers; child learns self-care skills such as toileting
Crisis: Initiative Versus Guilt	Age: 3 to 6 years Positive characteristic gained: Purpose Developmental tasks: ability to organize activities around some goal; more assertiveness and aggressiveness (Oedipus conflict with parent of same sex may lead to guilt)
Crisis: Industry Versus Inferiority	Age: 6 to 12 years Positive characteristic gained: Competence Developmental tasks: cultural skills and norms, including school skills and tool use (failure to master these leads to sense of inferiority)
Crisis: Identity Versus Role Confusion	Age: 12 to 18 years Positive characteristic gained: Fidelity Developmental tasks: adaptation of sense of self to pubertal changes, consideration of future choices, achievement of a more mature sexual identity, and search for new values
Crisis: Intimacy Versus Isolation	Age: 18 to 30 years Positive characteristic gained: Love Developmental tasks: persons develop intimate relationships beyond adolescent love; many become parents
Crisis: Generativity Versus Stagnation	Age: 30 to elder years Positive characteristic gained: Care Developmental tasks: people rear children, focus on occupational achievement or creativity, and train the next generation; turn outward from the self toward others
Crisis: Ego Integrity Versus Despair	Age: Elder years Positive characteristic gained: Wisdom Developmental tasks: person conducts a life review, integrates earlier stages, and comes to terms with basic identity; develops self-acceptance

Adhering to group norms regarding which clothes are "in" and "out" is one of the ways that Erikson says teenagers begin to construct a sense of identity that distinguishes them from their parents.

identity in a relationship, but in his view, it is only those who have already formed (or are well on the way to forming) a clear identity who can successfully enter this fusion of identities that he called *intimacy*. Young adults whose identities are weak or unformed will remain in shallow relationships and will experience a sense of isolation or loneliness.

The middle and late adulthood crises are shaped by the realization that death is inevitable. Middle-aged adults confront the crisis of *generativity versus stagnation*, which is "primarily the concern in establishing and guiding the next generation" (Erikson, 1963, p. 267). The rearing of children is the most obvious way to achieve a sense of generativity. Doing creative work, giving service to an organization or to society, or serving as a mentor to younger colleagues can help a midlife adult achieve a sense of generativity. Failing that, a self-absorbed, nongenerative adult may feel a sense of stagnation. Finally, older adults experience *ego integrity*

Watch LATE ADULTHOOD RELATIONSHIPS

As adults get older, the themes of personal relationships change. For example, partnerships become focused on companionship rather than romance. Likewise, friendships become more important sources of support than they were at earlier ages.

versus despair. The goal of this stage is an acceptance of one's life in preparation for facing death to avoid a sense of despair.

Research indicates that generativity increases in midlife as Erikson's theory predicts (Ackerman, Zuroff, & Moskowitz, 2000; Peterson, 2002). However, generativity continues to be an important developmental theme in adults' later years. Likewise, middle-aged adults often take stock of their lives "so far" in ways that are consistent with Erikson's construct of ego integrity. Thus, generativity and ego integrity may be better thought of as themes that emerge in adult life after the young adult crisis of intimacy versus isolation has been resolved than as distinct stages.

Review of Erikson's Ages and Stages

Erikson's stages cover the entire lifespan from birth to death. In each stage, the developing individual faces a unique crisis.

Age Ranges	Crisis
Birth to 1 year	Trust versus mistrust
1 to 3 years	Autonomy versus shame and doubt
3 to 6 years	Initiative versus guilt
6 to 12 years	Industry versus inferiority
12 to 18 years	Identity versus role confusion
18 to 30 years	Intimacy versus isolation
30 years to late adulthood	Generativity versus stagnation
Late adulthood	Integrity versus despair

WRITING PROMPT

You Decide—Comparing Freud's and Erikson's Theories

Which theory, Freud's or Erikson's, corresponds best to the challenges and concerns you have confronted in your life?

The response entered here will appear in the performance dashboard and can be viewed by your instructor.

Submit

Table 2.2 Evaluating Psychoanalytic Theories

Psychoanalytic theories emphasize unconscious forces. They differ on how they view the individual's connection to the environment as well as the age range in which developmental change takes place. Freud's theory restricts change to childhood and adolescence, while Erikson's covers the entire lifespan.

Theory	Main Idea	Strengths	Weaknesses
Freud's psychosexual theory	Personality develops in five stages from birth to adolescence; in each stage, the need for physical pleasure is focused on a different part of the body.	Emphasizes the importance of experiences in infancy and early childhood; provides psychological explanations for mental illness.	Sexual feelings are not as important in personality development as Freud claimed.
Erikson's psychosocial theory	Personality develops through eight life crises across the entire lifespan; a person finishes each crisis with either a good or poor resolution.	Helps explain the role of culture in personality development; important in lifespan psychology; useful description of major themes of personality development at different ages.	Describing each period in terms of a single crisis is probably an oversimplification.

2.1.3: Evaluation of Psychoanalytic Theories

OBJECTIVE: Assess the strengths and weakness of psychoanalytic theory

Psychoanalytic theories such as Freud's and Erikson's, compared in Table 2.2, have several attractive aspects. Most centrally, they highlight the importance of a child's earliest relationships with caregivers. Furthermore, they suggest that a child's needs change with age, so parents and other caregivers must continually adapt to the changing child. One implication is that we should not think of "good parenting" as an unchanging quality. Some people may be very good at meeting the needs of an infant but less capable of dealing with teenagers' identity struggles. The child's eventual personality and her overall mental health thus depend on the interaction pattern that develops in a particular family. The idea of changing needs is an extremely attractive element of these theories because more and more of the research in developmental psychology is moving developmentalists toward just such a conception of the process.

Psychoanalytic theory has also given psychologists a number of helpful concepts, such as the unconscious, the ego, and identity, which have become a part of everyday language as well as theory. Moreover, psychologists are taking a fresh look at Freud's ideas about the importance of defense mechanisms in coping with anxiety (e.g.,Malone, Cohen, Liu, Vaillant, & Waldinger, 2013). Freud is also usually credited with the invention of psychotherapy, which is still practiced today. An additional strength of the psychoanalytic perspective is the emphasis on continued development during adulthood found in Erikson's theory. His ideas have provided a framework for a great deal of new research and theorizing about adult development. The major weakness of psychoanalytic theories is the fuzziness of many of their concepts. For example, how could researchers detect the presence of the id, ego, superego, and so on? Without more precise definitions, it is extremely difficult to test these theories, despite their provocative explanations of development.

2.2: Learning Theories

Psychologist John Watson (1878–1958) offered ideas about human development that were very different from those of Freud. Watson believed that, through manipulation of the environment, children could be trained to be or do anything (Jones, 1924; Watson, 1930). To refer to this point of view, Watson coined the term *behaviorism*, which defines development in terms of behavior changes caused by environmental influences. As Watson put it,

> Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in and I'll guarantee to take any one at random and train him to become any type of specialist I might select—doctor, lawyer, merchant, chief, and yes, even beggarman and thief, regardless of his talents, penchants, abilities, vocations, and race of his ancestors. (1930, p. 104)

Watson's views represent a way of thinking about development that is common to all of the *learning theories*. These theories assert that development results from an accumulation of experiences. As you will see, however, each of the learning theories has a distinctive way of explaining how experience shapes development.

By the end of this module, you will be able to:

2.2.1 **Explain how classical conditioning relates to human development**

2.2.2 **Identify the principles of human development according to the operant conditioning approach**

2.2.3 **Explain the cognitive elements of human development in the social-cognitive theory**

2.2.4 **Contrast how the learning theories explain human development**

2.2.1: Classical Conditioning

OBJECTIVE: Explain how classical conditioning relates to human development

Watson based many of his ideas about the relationship between learning and development on the work of Russian physiologist and Nobel Prize Winner Ivan Pavlov (1849–1936).

Pavlov's Principles of Classical Conditioning

Pavlov discovered that organisms can acquire new signals for existing responses (behaviors). The term *classical conditioning* refers to the set of principles that explain the processes through which organisms acquire new signals for existing behavior.

Each incidence of learning begins with a biologically programmed stimulus–response connection, or *reflex*. For example, salivation happens naturally when you put food in your mouth. In classical conditioning terms, the food is the *unconditioned (unlearned, natural) stimulus*; salivating is an *unconditioned (unlearned, natural) response*.

Stimuli presented just before or at the same time as the unconditioned stimulus are those that are likely to be associated with it. For example, most foods have odors, and to get to your mouth, food has to pass near your nose. Thus, you usually smell food before you taste it. Food odors eventually become *conditioned* (*learned*) *stimuli* that elicit salivation. In effect, they act as a signal to your salivary glands that food is coming.

Once the connection between food odors and salivation has been established, smelling food triggers the salivation response even when you do not actually eat the food. When a response occurs reliably in connection with a conditioned stimulus in this way, it is known as a *conditioned* (*learned*) *response*.

WRITING PROMPT

Consider This—Classical Conditioning in Everyday Life

Describe instances in your everyday life when your behavior is affected by classical conditioning. How do you use these principles to affect others' behavior?

The response entered here will appear in the performance dashboard and can be viewed by your instructor.

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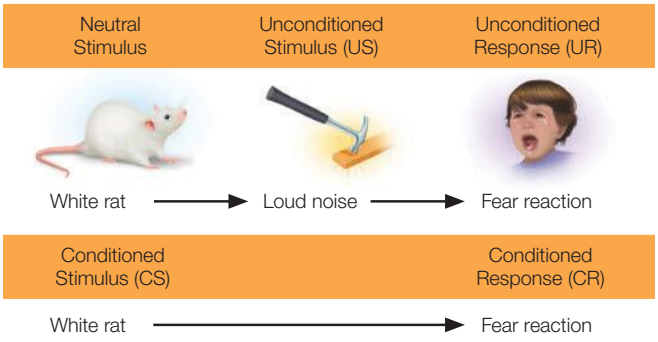
JOHN WATSON AND "LITTLE ALBERT" John Watson proposed that Pavlov's principles of classical conditioning held the key to understanding human development. He viewed developmental change as nothing more than the acquisition of connections between stimuli and responses. To prove his point, Watson set out to show that he could use the principles of classical conditioning to cause an infant to develop a new emotional response to a stimulus. Watson's hapless subject, 11-month-old "Little Albert," was exposed to loud noises while he played with a white rat, a stimulus that had fascinated him when it was first introduced (see Figure 2.1). As a result of the pairing of the rat with the noises, however, Albert learned to fear the rat so thoroughly that he cried hysterically at the mere sight of the rodent. Moreover, he exhibited *generalization*, the association of a learned response with a new, but similar, stimulus, when he exhibited fear in response to other white, fuzzy objects such as a rabbit, a fur coat, and a Santa Claus mask.

Figure 2.1 How Watson Conditioned Fear in Little Albert

Watson conditioned an infant, Little Albert, to fear a white rat using this procedure. The *unconditioned stimulus* was a loud noise to which Albert's *unconditioned response* was fear. The *conditioned stimulus* was the white rat to which Albert learned a *conditioned response* that was identical to his response to the loud noise, that is, fear.

SOURCE: Wood, Samuel E.; Wood, Ellen Green; Boyd, Denise, Mastering The World Of Psychology, Books A La Carte Edition, 6Th Ed., ©2018. Reprinted And Electronically Reproduced By Permission Of Pearson Education, Inc., New York, Ny.



PRACTICAL IMPLICATIONS OF CLASSICAL CONDITIONING As you might guess, Watson's experiment would be regarded as unethical by today's standards. Moreover, few developmentalists would agree with Watson's assertion that classical conditioning explains all of human development. Yet the Little Albert experiment demonstrated that classical conditioning may indeed be the source of developmental changes that involve emotional responses. For this reason, classical conditioning continues to have a place in the study of human development. It is especially important in infancy. Because a child's mother or father is present so often when nice things happen, such as when the child feels warm, comfortable, and cuddled, the mother and father usually serve as conditioned stimuli for pleasant feelings, a fact that makes it possible for the parents' presence to comfort a child.

Moreover, classical conditioning is the basis of several useful therapies for anxiety problems. Imagine a scenario in which a school psychologist is confronted with a child who exhibits *school refusal*, a disorder in which extreme anxiety prevents children from attending school. In most cases of school refusal, children avoid going to school because they feel extremely anxious in the school setting (Kauffman, 2005). The mechanisms at work in John Watson's experiment with Little Albert hold the key to helping children overcome school refusal. Psychologists speculate that, among children who refuse to go to school, the neutral stimulus of school has become associated with stimuli that naturally provoke anxious responses in children. Consequently, psychologists reason that children's

Developmental Science in the Classroom: Systematic Desensitization

Techniques based on the principles of classical conditioning are particularly effective for helping people overcome fears such as school refusal, an irrational fear of the school setting that causes some children to take extreme measures, such as locking themselves in the bathroom, to avoid attending school. School phobia typically responds to systematic desensitization. Here's how the process works.

Before initiating systematic desensitization, the school psychologist determines if there is a concrete reason for the child to refuse to go to school, such as the fear of being bullied. If such a reason is found, she works with the child's teachers and school administrators to address the problem.
Systematic desensitization begins with teaching the child how to control his respiration rate and muscular contractions to achieve a state of physical relaxation.
In the next phase of therapy, the child learns to "switch on" his relaxation response in connection with each step in the sequence of events that are involved in getting to and staying in school. For example, he will first learn to intentionally relax while getting dressed for school. Next, he will practice intentionally relaxing while waiting for the bus and then while he is on the bus. Once at school, the therapist will encourage him to initiate his relaxation response in front of the school entrance.
The final step will be to learn to intentionally relax in the classroom and to initiate the relaxation response whenever he experiences feelings of anxiety during the school day. As a result, the child will learn to associate going to school with the relaxation responses rather than with anxiety.

fear of school can be unlearned through the same stimulus–response mechanism that produced it, a type of therapy called *systematic desensitization* in which a person is exposed to a feared situation or object in increasing degrees over a period of time (Kauffman, 2005; Wolpe, 1958).

WRITING PROMPT

Consider This—Systematic Desensitization Outside the Classroom

How could systematic desensitization be used to help a child who was bitten by a dog overcome her subsequent fear of all dogs?

▶ The response entered here will appear in the performance dashboard and can be viewed by your instructor.

Submit

2.2.2: Skinner's Operant Conditioning

OBJECTIVE: Identify the principles of human development according to the operant conditioning approach

Another behavioral approach to development may be found in a set of learning principles known collectively as *operant conditioning*, a term coined by B. F. Skinner (1904–1990), the most famous proponent of this theory (Skinner, 1953, 1980). Operant conditioning occurs when an organism learns to repeat or stop a behavior because of the consequences it elicits from the environment.

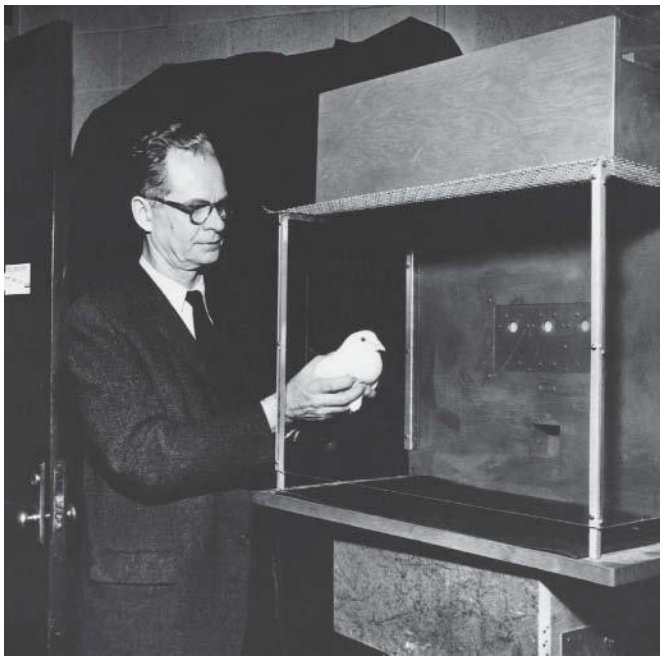
Positive and negative reinforcement often interact in complex ways in real-life contexts. For example, most people understand that paying attention to a preschooler's whining is likely to increase it—an example of positive reinforcement. However, parents learn to attend to whining preschoolers because whining is irritating, and responding to it usually makes it stop. In other words, like taking cough syrup for an annoying cough, the parents' behavior of responding to whining is negatively reinforced by its consequence—namely, that the child *stops* whining.

Such examples illustrate the complex manner in which reinforcements and punishments operate in the real world. In laboratory settings, operant-conditioning researchers usually work with only one participant or animal subject at a time; they needn't worry about the social consequences of behaviors or consequences. They can also control the situation so that a particular behavior is reinforced every time it occurs. In the real world, *partial reinforcement*—reinforcement of a behavior on some occasions but not others—is more common. Studies of partial reinforcement

Operant Conditioning

Operant conditioning involves learning to repeat or stop behaviors because of the consequences they bring about.

Reinforcement	*Reinforcement* is anything that follows a behavior and causes it to be repeated. A *positive reinforcement* is a consequence (usually involving something pleasant) that follows a behavior and increases the chances that the behavior will occur again. For example, if you buy a scratch ticket and win $100, you will probably be more willing to buy another ticket in the future than you would if you hadn't won the money. *Negative reinforcement* occurs when an individual learns to perform a specific behavior to cause something unpleasant to stop. For example, coughing is an unpleasant experience for most of us, and taking a dose of cough medicine usually stops it. As a result, when we begin coughing, we reach for the cough syrup. The behavior of swallowing a spoonful of cough syrup is reinforced by the cessation of coughing.
Punishment	In contrast to both kinds of reinforcement, *punishment* stops a behavior. Sometimes punishments involve eliminating nice things—taking away TV or video-game privileges, for example. However, punishment may also involve unpleasant things such as scolding. Like reinforcement, however, punishment is defined by its effect. Consequences that do not stop behavior can't be properly called punishments.
Extinction	An alternative way to stop an unwanted behavior is *extinction*, which is the gradual elimination of a behavior through repeated nonreinforcement. If a teacher succeeds in eliminating a student's undesirable behavior by ignoring it, the behavior is said to have been *extinguished*.



Laboratory research involving animals was important in the development of Skinner's operant conditioning theory.

show that people take longer to learn a new behavior under partial reinforcement conditions; once established, however, such behaviors are very resistant to extinction.

Most parents try to use consequences to change their children's behavior. Few realize that, in many cases, they may actually be strengthening those behaviors. Consider the example of a father whose 3-year-old son repeatedly demands attention while the father is fixing dinner. The first three, or five, or seven times the child says "Dad" or tugs at the father's pants leg, the father ignores him. But after the eighth or ninth repetition, with the child's voice getting whinier each time, the father can't stand it anymore: "All right! What do you want?" The parent thereby creates a pattern of partial reinforcement that encourages the child to be even more demanding. In effect, the child becomes like a gambler who deposits token after token into a slot machine, knowing that he will eventually hit the jackpot. Thus, parents may have more success in changing children's behavior if they administer an appropriate consequence the first time an unwanted behavior occurs.

WRITING PROMPT

Consider This—Operant Conditioning in Everyday Life

Describe instances in your everyday life when your behavior is affected by operant conditioning. How do you use these principles to affect others' behavior?

The response entered here will appear in the performance dashboard and can be viewed by your instructor.

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2.2.3: Bandura's Social-Cognitive Theory

OBJECTIVE: Explain the cognitive elements of human development in the social-cognitive theory

Learning theorist Albert Bandura (b. 1925), whose ideas are more influential among developmental psychologists than those of the conditioning theorists, argues that learning does not always require reinforcement (1977a, 1982, 1989). Learning may also occur as a result of watching someone else perform some action and experience reinforcement or punishment. Learning of this type, called *observational*

Learning from Models

In Bandura's observational learning research, children learned to copy aggression by observing adult models act aggressively toward a Bobo doll.

(a) Modeling is an important source of learning for both children and adults. What behaviors have you learned by watching and copying others?

(b) We do not learn from models simply by observing them. Several factors determine whether observation will lead to learning. For example, an observer must be physically able to imitate the behavior and motivated to perform it on her own. How likely is this child to actually learn how to braid hair from this experience? Even though she may not acquire the model's behavior, are there other behaviors, thoughts, or feelings that she is likely to learn from this experience?

learning, or *modeling*, is involved in a wide range of behaviors. For example, observant schoolchildren learn to distinguish between strict and lenient teachers by observing teachers' reactions to the misbehaviors of children who are risk takers—that is, those who act out without having determined how teachers might react. Observant children, when in the presence of strict teachers, suppress forbidden behaviors such as talking out of turn and leaving their seats without permission. By contrast, when they are under the authority of lenient teachers, these children may display just as much misbehavior as their risk-taking peers.

Bandura points out that what an observer learns from watching someone else will depend on two cognitive elements: what she pays attention to and what she is able to remember. Moreover, to learn from a model, an observer must be physically able to imitate the behavior and motivated to perform it on her own. Because attentional abilities, memory, physical capabilities, and motivations change with age, what a child learns from any given modeled event may be quite different from what an adult learns from an identical event (Grusec, 1992).

Bandura argued that we acquire expectancies about what we can and cannot do—which Bandura (1997) calls *self-efficacy*—from models and from attempting to learn from models. Once those standards and those expectancies or beliefs have been established, they affect the child's behavior in consistent and enduring ways. For example, self-efficacy beliefs influence our overall sense of well-being and even our physical health.

2.2.4: Evaluation of Learning Theories

OBJECTIVE: Contrast how the learning theories explain human development

Several implications of learning theories, compared in Table 2.3, are worth emphasizing. First, learning theories can explain both consistency and change in behavior. If a child is friendly and smiling both at home and at school, learning theorists would explain this behavior by saying that the child is being reinforced for it in both settings. It is equally possible to explain why a child is happy at home but miserable at school. We need only hypothesize that the home environment reinforces cheerful behavior but the school setting does not.

Learning theorists also tend to be optimistic about the possibility of change. Children's behavior can change if the reinforcement system—or their beliefs about themselves—change. So, problem behavior can be modified.

The great strength of learning theories is that they seem to give an accurate picture of the way in which many behaviors are learned. It is clear that both children and adults learn through conditioning and modeling. Furthermore, Bandura's addition of mental elements to learning theory adds further strength because it allows an integration of learning models and other approaches.

However, the learning theorists' approach is not really developmental; it doesn't tell us much about change with age, either in childhood or in adulthood. Even Bandura's variation on learning theory does not tell us whether there are any changes with age in what a child can learn from modeling. Thus, learning theories help developmentalists understand how specific behaviors are acquired but do not contribute to an understanding of age-related change.

2.3: Cognitive Theories

The group of theories known as *cognitive theories* emphasize mental aspects of development such as logic and memory. Have you ever watched a baby throwing things out of her mother's shopping cart? No matter how many objects the baby drops, she watches each one intently as if she has no idea where it's going to land. Why do babies engage in repetitive actions of this kind? One reason might be that they use their motor skills (throwing things) and senses (watching them) to build mental pictures of the world around them. Thus, infants drop objects and watch them fall until they have learned all they can from this behavior; then they move on to a more mature way of interacting with the world.

Table 2.3 Evaluating Learning Theories

All learning theories emphasize environmental influences, but there are important distinctions among them. This table will help you review the differences.

Theory	Main Idea	Strengths	Weaknesses
Pavlov's classical conditioning	Learning happens when neutral stimuli become so strongly associated with natural stimuli that they elicit the same response.	Useful in explaining how emotional responses such as phobias are learned.	Explanation of behavior change is too limited to serve as comprehensive theory of human development.
Skinner's operant-conditioning theory	Development involves behavior changes that are shaped by reinforcement and punishment.	Basis of many useful strategies for managing and changing human behavior.	Humans are not as passive as this theorist claimed; the theory ignores hereditary, cognitive, emotional, and social factors in development.
Bandura's social-learning theory	People learn from models; what they learn from a model depends on how they interpret the situation cognitively and emotionally.	Helps explain how models influence behavior; explains more about development than other learning theories do because of addition of cognitive and emotional factors.	Does not provide an overall picture of development.

By the end of this module, you will be able to:

- **2.3.1** **Summarize the principles of cognitive development proposed by Piaget**
- **2.3.2** **Summarize the principles of cognitive development proposed by Vygotsky**
- **2.3.3** **Describe how information processing theorists explain the findings of cognitive-developmental psychologists**
- **2.3.4** **Summarize the contributions of the cognitive theories to the study of human development**

2.3.1: Piaget's Cognitive-Developmental Theory

OBJECTIVE: Summarize the principles of cognitive development proposed by Piaget

Piaget based many of his ideas on naturalistic observations of children of different ages on playgrounds and in schools.

One of the most influential theories in the history of developmental psychology is that of Swiss developmentalist Jean Piaget (1896–1980). Originally educated as a natural scientist, Piaget spent six decades studying the development of logical thinking in children. Because of the popularity of Watson's views, psychologists in the United States paid little attention to Piaget's work. During the late 1950s, however, American developmentalists "discovered" Piaget. Developmental psychologists in the United States then began to focus on children's thinking more than on how environmental stimuli influenced their behavior.

Piaget was struck by the fact that all children seem to go through the same sequence of discoveries about their world, making the same mistakes and arriving at the same solutions (Piaget, 1952, 1970, 1977; Piaget & Inhelder, 1969). For example, all 3- and 4-year-olds seem to think that if water is poured from a short, wide glass into a taller, narrower one, there is then more water because the water level is higher in the narrow glass than it was in the wide glass. In contrast, most 7-year-olds realize that the amount of water has not changed (see *Piaget's Principles of Cognitive Development*).

FOUR STAGES OF COGNITIVE DEVELOPMENT Piaget's research suggested to him that logical thinking evolves in four stages. For now, it is important to understand that in Piaget's view, each stage grows out of the one that precedes it, and each involves a major restructuring of the child's way of thinking. It's also important to know that research has confirmed Piaget's belief that the sequence of the stages is fixed. However, children progress through them at different rates. In addition, some individuals do not attain the formal operational stage in adolescence or even in adulthood. Consequently, the ages associated with the stages are approximations (see *Piaget's Stages of Cognitive Development*).

Piaget's Principles of Cognitive Development

To explain age differences in thinking, Piaget proposed several concepts that continue to guide developmental research.

Schemes	A pivotal idea in Piaget's model is that of a *scheme*, an internal cognitive structure that provides an individual with a procedure to follow in a specific circumstance. For example, when you pick up a ball, you use your picking-up scheme. Piaget proposed that each of us begins life with a small repertoire of sensory and motor schemes, such as looking, tasting, touching, hearing, and reaching. As we use each scheme, it becomes better adapted to the world; in other words, it works better. During childhood and adolescence, mental schemes allow us to use symbols and think logically. Piaget proposed three processes to explain how children get from built-in schemes such as looking and touching to the complex mental schemes used in childhood, adolescence, and adulthood.
Assimilation and Accommodation	*Assimilation* is the process of using schemes to make sense of experiences. Piaget would say that a baby who grasps a toy is *assimilating* it to his grasping scheme. The complementary process is *accommodation*, which involves changing the scheme as a result of some new information acquired through assimilation. When the baby grasps a square object for the first time, he will accommodate his grasping scheme; the next time he reaches for a square object, his hand will be more appropriately bent to grasp it. Thus, the process of accommodation is the key to developmental change. Through accommodation, we improve our skills and reorganize our ways of thinking.
Equilibration	*Equilibration* is the process of balancing assimilation and accommodation to create schemes that fit the environment. To illustrate, think about infants' tendency to put things in their mouths. In Piaget's terms, they assimilate objects to their mouthing scheme. As they mouth each one, their mouthing scheme changes to include the instructions "*Do* mouth this" or "*Don't* mouth this." The accommodation is based on mouthing experiences. A pacifier feels good in the mouth, but a dead insect has an unpleasant texture. So, eventually, the mouthing scheme says it's okay to put a pacifier in the mouth, but it's not okay to do the same with a dead insect. In this way, an infant's mouthing scheme attains a better fit with the real world.

Piaget's Stages of Cognitive Development

Piaget discovered patterns of age-related change in children's logical thinking. He argued that each of these patterns represents a developmental stage that establishes a foundation for the next stage.

The Sensorimotor Stage	During the *sensorimotor stage*, from birth to 18 months, infants use their sensory and motor schemes to act on the world around them. The baby understands the world through her senses and her motor actions; she begins to use simple symbols, such as single words and pretend play, near the end of this period.
The Preoperational Stage	In the *preoperational stage*, from 18 months to about age 6, youngsters acquire symbolic schemes, such as language and fantasy, that they use in thinking and communicating. By age 2, the child can use symbols both to think and to communicate; by the end of this stage, he develops the abilities to take others' points of view, classify objects, and use simple logic.
The Concrete Operational Stage	Next comes the *concrete operational stage*, during which 6- to 12-year-olds begin to think logically and can grasp concepts such as *conservation*, the understanding that a change in appearance doesn't necessarily mean that a substance has changed in quantity. The child's logic takes a great leap forward in this stage, but his thinking is still tied to the known world. By the end of the period, he can reason about simple "what-if" questions.

Watch CONSERVATION OF VOLUME

One of the classic problems that Piaget presented to children was his conservation of volume task.

The Formal Operational Stage	The last phase is the *formal operational stage*, in which adolescents learn to think logically about abstract ideas and hypothetical situations. The teen begins to manipulate ideas as well as objects; she thinks hypothetically and, by adulthood, can easily manage a variety of "what-if" questions; she greatly improves her ability to organize ideas and objects mentally.

WRITING PROMPT

You Decide—Piaget's Cognitive–Developmental Stages

What are the pros and cons of educating parents and teachers about Piaget's stages of cognitive development? That is, to what extent might parents and educators who learn about Piaget's stages overestimate or underestimate children's abilities?

The response entered here will appear in the performance dashboard and can be viewed by your instructor.

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2.3.2: Vygotsky's Sociocultural Theory

OBJECTIVE: Summarize the principles of cognitive development proposed by Vygotsky

Lev Vygotsky's *sociocultural theory* asserts that complex forms of thinking have their origins in social interactions rather than in the child's private explorations, as Piaget thought. According to Vygotsky, children's learning of new cognitive skills is guided by an adult (or a more skilled child, such as an older sibling), who structures the child's learning experience—a process Vygotsky called *scaffolding*. To create an appropriate scaffold, the adult must gain and keep the child's attention, model the best strategy, and adapt the whole process to the child's developmental level, or *zone of proximal development* (Landry, Garner, Swank, & Baldwin, 1996; Rogoff, 1990). Vygotsky used this term to signify tasks that are too hard for the child to do alone but that he can manage with guidance. For example, parents of a beginning reader provide a scaffold when they help him sound out new words.

Vygotsky's ideas have important educational applications. Like Piaget's, Vygotsky's theory suggests the importance of opportunities for active exploration. But assisted discovery would play a greater role in a Vygotskian than in a Piagetian classroom; the teacher would provide the scaffolding for children's discovery, through questions, demonstrations, and explanations (Tharp & Gallimore, 1988). To be effective, the assisted discovery processes would have to be within the zone of proximal development of each child.

Developmental psychologist Lev Vygotsky hypothesized that social interactions among children, such as the 2-year-old boy and girl playing here, are critical to both cognitive and social development.

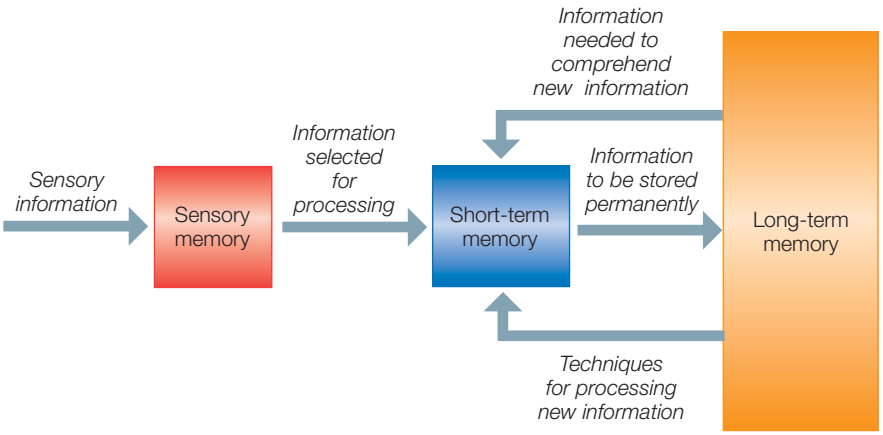
2.3.3: Information-Processing Theory

OBJECTIVE: Describe how information processing theorists explain the findings of cognitive-developmental psychologists

The goal of *information-processing theory* is to explain how the mind manages information (Radvansky, 2017). Theorizing about and studying memory processes are central to information-processing theory. Most memory research assumes that the human memory is made up of multiple components. The idea is that information moves through these components in an organized way. The process of understanding a spoken word serves as a good example. First, you hear the word when the sounds enter your *sensory memory*. Your experiences with language allow you to recognize the pattern of sounds as a word. Next, the word moves into your *short-term memory*, the component of the memory system where all information is processed. Thus, short-term memory is often called *working memory*. Knowledge of the word's meaning is then called up out of *long-term memory*, the component of the system where information is permanently stored, and placed in short-term memory, where it is linked to the word's sounds to enable you to understand it.

According to the information-processing model, children presented with problems such as Piaget's conservation tasks process the information they need to solve such problems in their short-term memories. As you will learn later in the text, a great deal of research has shown that younger children's short-term memories are both more limited in capacity and less efficient than those of older children (Kail, 1990, 2008). Consequently, some developmentalists have used information-processing theory to explain Piaget's stages. Their theories are called *neo-Piagetian theories* because they expand on Piaget's theory rather than contradict it (Case, 1985, 1997). According to neo-Piagetians, older children and adults can solve complex problems like those in Piaget's research because they can hold more pieces of information in their short-term memories at the same time than younger children can (Kail 1990, 2008).

The Information-Processing System



Information moves through these components in an organized way. The process of understanding a spoken word serves as a good example. First, you hear the word when the sounds enter your *sensory memory*. Your experiences with language allow you to recognize the pattern of sounds as a word as the word moves into your *short-term memory*, the component of the memory system where all information is processed. The short-term memory is often called *working memory*. The word's meaning is then called up out of *long-term memory*, the component of the system where information is permanently stored. Short-term memory integrates the word's sound pattern with its meaning, enabling you to understand and respond to it.

2.3.4: Evaluation of Cognitive Theories

OBJECTIVE: Summarize the contributions of the cognitive theories to the study of human development

Research based on cognitive theories, summarized in Table 2.4, has demonstrated that simplistic views, such as those of the conditioning theorists, cannot explain the development of complex phenomena such as logical thinking. For example, since Piaget's work was first published in the 1920s, his research findings have been replicated in virtually every culture and in every cohort of children. Nevertheless, researchers have found that children develop some intellectual skills at earlier ages than Piaget's findings suggested. Moreover, the process of cognitive development seems to be a great deal less stage-like than Piaget proposed.

Likewise, as Vygotsky's theory would predict, studies have shown that children in pairs and groups produce more sophisticated ideas than individual children who work on problems alone (Tan-Niam, Wood, & O'Malley, 1998). Moreover, researchers have found that young children whose parents provide them with more scaffolding during the preschool years exhibit higher levels of achievement in elementary school than peers

Table 2.4 Evaluating Cognitive Theories

Cognitive theories provide more comprehensive explanations of age-related change than the learning theories do. Each has its own strengths and weaknesses.

Theory	Main Idea	Strengths	Weaknesses
Piaget's theory of cognitive development	Reasoning develops in four universal stages from birth through adolescence; in each stage, the child builds a different kind of scheme.	Helps explain how children of different ages think about and act on the world.	Stage concept may cause adults to underestimate children's reasoning abilities; there may be additional stages in adulthood.
Information-processing theory	The computer is used as a model for human cognitive functioning; encoding, storage, and retrieval processes change with age, causing changes in memory function; these changes happen because of both brain maturation and practice.	Helps explain how much information people of different ages can manage at one time and how they process it; provides a useful framework for studying individual differences in people of the same age.	Human information processing is much more complex than that of a computer; the theory doesn't provide an overall picture of development.
Vygotsky's sociocultural theory	Language and social factors spur cognitive development.	Incorporates group learning processes into explanations of individual cognitive development.	There is insufficient evidence to support most ideas.

whose parents provide less support of this kind (Neitzel & Stright, 2003).

The information-processing approach to cognitive development has also received a great deal of empirical support (Birney & Sternberg, 2011). These findings have helped to clarify some of the cognitive processes underlying Piaget's and Vygotsky's findings. However, critics claim that information-processing theory emphasizes explanations of single cognitive tasks at the expense of a comprehensive picture of development.

2.4: Biological and Ecological Theories

Theories that propose links between physiological processes and development represent one of the most important trends among developmentalists in the 21st century (Parke, 2004). Some of these theories focus on individual differences, while others deal with universal aspects of development. Moreover, all of them, to varying degrees, address the manner in which environmental factors interact with physiological processes.

By the end of this module, you will be able to:

2.4.1 **Explain how behavior geneticists try to understand individual differences**

2.4.2 **Distinguish between the explanations of human development proposed by ethologists and sociobiologists**

2.4.3 **Identify the main idea of Bronfenbrenner's bioecological theory**

2.4.1: Behavior Genetics

OBJECTIVE: **Explain how behavior geneticists try to understand individual differences**

Behavior genetics focuses on the effect of heredity on individual differences. Traits or behaviors are believed to be influenced by genes when those of related people, such as children and their parents, are more similar than those of unrelated people. Behavior geneticists have shown that heredity affects a broad range of traits and behaviors, including intelligence, shyness, and aggressiveness.

Furthermore, the contributions of heredity to individual differences are evident throughout the lifespan. For example, researchers in the Netherlands have been studying a number of variables in identical and fraternal twins for several decades (Netherlands Twin Register, 2013). Identical twins are particularly important in genetic research because they have exactly the same genes. Dutch researchers have found that IQ scores of identical twins are more strongly correlated than those of fraternal (nonidentical) twins from early childhood until middle age. Interestingly, too, such findings show that the environment affects IQ scores as well but that its effects may be transient. This conclusion is suggested by the fact that the IQ scores of fraternal twins are more strongly correlated in childhood, when they are living together, than in adulthood, when they do not share the same environment.

Twin and family studies also help behavior geneticists identify the ways in which an individual's genetic makeup influences the environments. Such studies suggest that nature and nurture have interactive as well as independent effects on development. That is, parents and others in the environment respond differently to children who exhibit different patterns of behavior. For example, activity patterns are at least somewhat attributable to heredity, and teachers may give more attention to students who are highly active than to students who are not so active. Researchers have found that such interactions of nature and nurture contribute to human development (see *How an Individual's Genetic Makeup Affects the Environment*).

WRITING PROMPT

You Decide—Genes and Environment

How do you view the roles of genes and environment in your own development? If you view yourself as similar to your parents, do you think the similarity is due to genes or the way that your parents raised you? Explain your answers.

The response entered here will appear in the performance dashboard and can be viewed by your instructor.

Submit

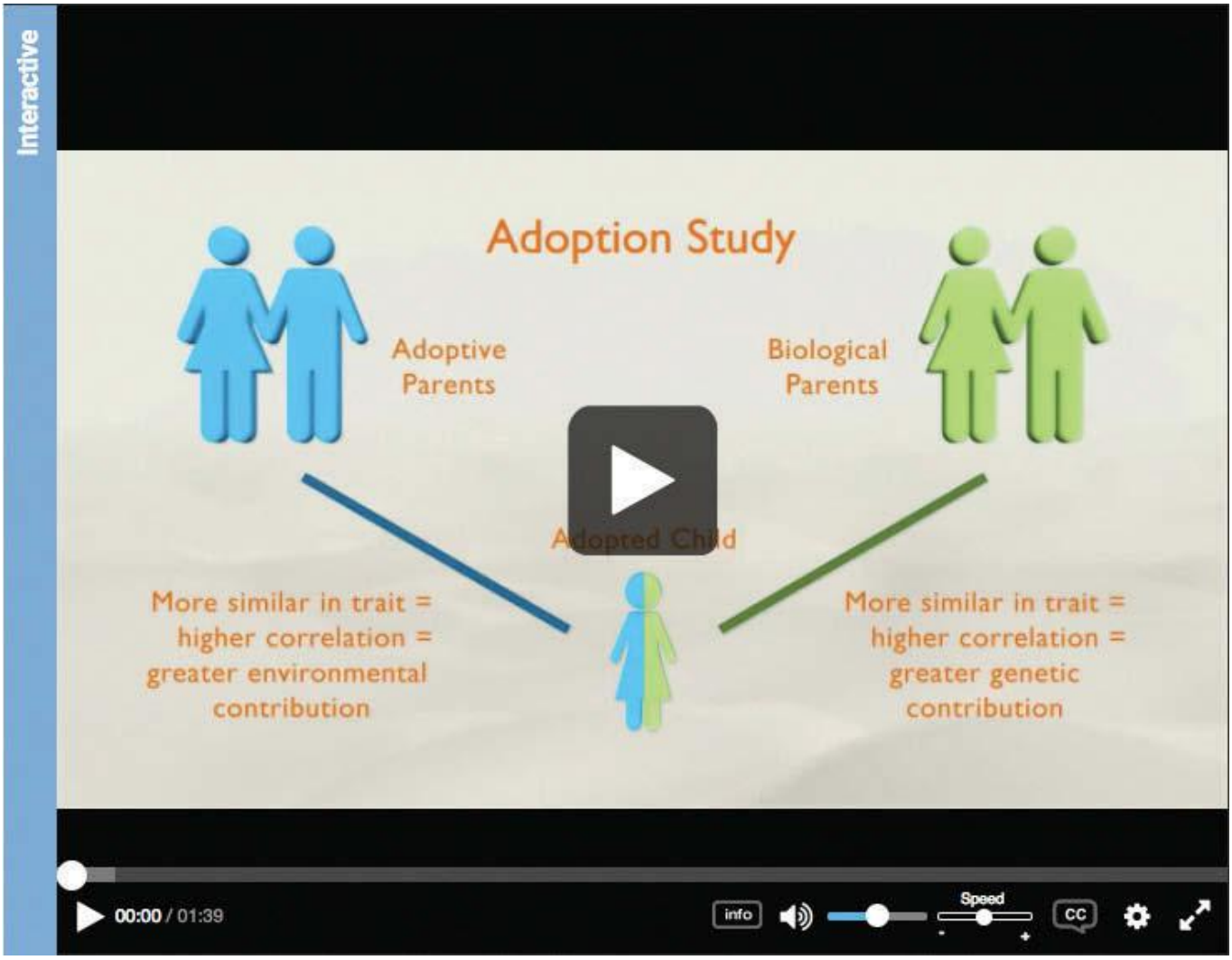
2.4.2: Ecological Theories

OBJECTIVE: **Distinguish between the explanations of human development proposed by ethologists and sociobiologists**

The relationship between individuals and the settings in which they develop is the emphasis of *ecological theories*—perspectives that view development as resulting from the degree to which genes help or hinder individuals' efforts to adapt to their environments. Ethologists study universal behaviors that support individual survival, such as infant–caregiver attachment. Sociobiologists look for universal behaviors that support group survival, such as prohibitions against violence. Both theories attribute survival behaviors to heredity. Thus, critics of ecological theories claim that these approaches underestimate the impact of the environment and are difficult to test.

Watch FAMILY AND TWIN STUDIES

Researchers investigate the relative contributions of heredity and environment by comparing family members who are raised in the same and different environments. These studies often include identical twins who are raised separately. Find out why in this video.



How an Individual's Genetic Makeup Affects the Environment

Behavior geneticists also study how individuals' genetic makeup influences the environments in which they are developing, a phenomenon that could occur via either or both of two routes.

Parents Create the Child's Environment	First, the child inherits his genes from his parents, who also create the environment in which he is growing up. So a child's genetic heritage may predict something about his environment. For example, parents who themselves have higher IQ scores are not only likely to pass their "good IQ" genes on to their children, but they are also likely to create a richer, more stimulating environment for those children.
Children's Behavior Influences the Environment	Second, each child's unique pattern of inherited qualities affects the way she behaves with other people, which in turn affects the way adults and other children respond to her. A cranky or temperamentally difficult baby may receive fewer smiles and more scolding than a placid, even-tempered one; a genetically brighter child may demand more personal attention, ask more questions, or seek out more complex toys than would a less bright child (Saudino & Plomin, 1997).
Inherited Traits Influence the Child's Interpretations of Events	Third, children's interpretations of their experiences are affected by all their inherited tendencies, including not only intelligence but also temperament or pathology (Plomin, Reiss, Hetherington, & Howe, 1994).

Ecological Theories

Ethology focuses on the study of both animals and humans in their natural environments. Ethologists emphasize genetically determined survival behaviors that are assumed to have evolved through natural selection.

Ethology

- Ethologists study species-specific adaptions to the physical environment. For example, nests are necessary for the survival of young birds. Therefore, ethologists say, evolution has equipped birds with nest-building genes. Likewise, spiders are genetically equipped to spin webs that protect their eggs. Humans adapt natural refuges, such as caves, to protect themselves from the elements of the physical world as well as build structures that serve the same purpose.
- According to ethologists, genes direct the young of some species to form relationships with more mature members of the species through *imprinting*, a process in which newborns are able to recognize the characteristics of a protective organism within the first hours of life. Ethologist Konrad Lorenz (1903–1989) studied imprinting among animals extensively (Lorenz, 1935). He learned that young ducklings and geese, for example, imprint on any moving object to which they are exposed during the critical period for imprinting (24 to 48 hours after hatching). In fact, one of the best-known images in the field of ethology is that of Lorenz himself being followed by several goslings who had imprinted on him.

- Ethologists hypothesize that evolution has produced genes that cause human infants to form emotional bonds with their caregivers (Bowlby, 1969, 1980). For example, most people feel irritated when they hear a newborn crying. Ethologists say the baby is genetically programmed to cry in a certain way, and adults are genetically programmed to get irritated when they hear it. The caretaker responds to a crying baby's needs to remove the irritating stimulus of the noise. As the caretaker and infant interact, an emotional bond is created between them. Thus, genes for crying in an irritating manner increase infants' chances of survival.

Sociobiology

- *Sociobiology* is the study of society using the methods and concepts of biological science. When applied to human development, sociobiology emphasizes genes that aid group survival. Sociobiologists claim individual humans have the best chance for survival when they live in groups. Therefore, they claim, evolution has provided humans with genetic programming that helps us cooperate. For example, sociobiologists believe that humans are genetically programmed to create rules based on respect for other people's lives. Evolution has selected these genes, they claim, because people need to respect each other's lives and to be able to cooperate.

WRITING PROMPT

You Decide—Universal Rules

Do you agree with sociobiologists that the universality of rules that foster cooperation among humans is attributable to heredity? If not, how would you explain the observation that all societies create and enforce rules that govern these domains? How are rules for these domains manifested in your own culture?

The response entered here will appear in the performance dashboard and can be viewed by your instructor.

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2.4.3: Bronfenbrenner's Bioecological Theory

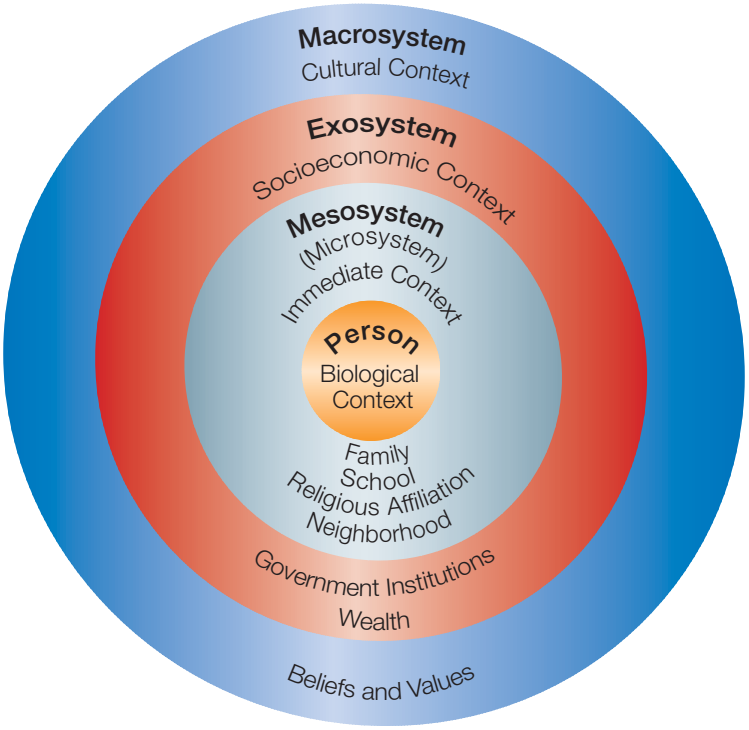
OBJECTIVE: Identify the main idea of Bronfenbrenner's bioecological theory

Another approach gaining interest in developmental psychology is that of Urie Bronfenbrenner (1917–2005). Bronfenbrenner's *bioecological theory* explains development in terms of relationships between people and their environments, or *contexts*, as Bronfenbrenner calls them (Bronfenbrenner, 1979, 1993). Bronfenbrenner attempted to classify all the individual and contextual variables that affect development and to specify how they interact.

According to Bronfenbrenner, the contexts of development are like circles within circles. The innermost circle, the *biological context*, consists of the child's genetic makeup and developmental stage. The biological context is contained within the *microsystem* (the immediate context), a system that includes variables to which children are exposed directly, such as their families, schools, religious

Bronfenbrenner's Contexts of Development

Bronfenbrenner's bioecological theory has helped researchers better understand how families moderate the effects of potentially damaging experiences, such as living in a refugee camp (like the Mayukwayukwa Camp feeding center for malnourished children in Zambia), on children's development.



The child's genetic makeup and developmental stage—her *biological context*—also influence her development. For example, a student who hasn't mastered the skill of reading isn't likely to benefit from an enriched literature program. Her culture, the socioeconomic situation, the school she attends, and her own family may all be geared toward providing a quality education. However, her ability to benefit from it will be determined by the degree to which her education fits her individual needs.

The *microsystem* (the immediate context) includes those variables to which children are exposed directly, such as their families, schools, religious institutions, and neighborhoods. The *mesosystem* is made up of the interconnections between these components. For example, the specific school a child attends and her own family are part of the microsystem. Her parents' involvement in her school and the response of the school to their involvement are part of the mesosystem. Thus, the culture a child is born into may strongly value quality education. Moreover, her nation's economy may provide ample funds for schooling. However, her own education will be more strongly affected by the particular school she attends and the connections—or lack thereof—between her school and her family.

The *exosystem* (the socioeconomic context) includes the institutions of the culture that affect children's development indirectly. For example, funding for education exists in the socioeconomic context. The citizens of a specific nation may strongly believe that all children should be educated (cultural context), but their ability to provide universal education may be limited by the country's wealth (socioeconomic context).

The *macrosystem* (the cultural context) contains the values and beliefs of the culture in which a child is growing up. For example, a society's beliefs about the importance of education exist in the cultural context.

institutions, and neighborhoods. The *mesosystem* is made up of the interconnections between these components. For example, the specific school a child attends and her own family are part of the microsystem. Her parents' involvement in her school and the response of the school to their involvement are part of the mesosystem. The next level, the *exosystem* (the socioeconomic context), includes the institutions of the culture that affect children's development indirectly. The outermost circle, the *macrosystem* (the cultural context), contains the values and beliefs of the culture in which a child is growing up.

Bronfenbrenner's bioecological theory provides a way of thinking about development that captures the complexity of individual and contextual variables. To date, its greatest contribution to developmental psychology has been its emphasis on the need for research examining interactions among these variables (Lerner, Lewin-Bizan, & Warren, 2011).

WRITING PROMPT

Consider This—Comparing Ecological and Learning Theories

Like the learning theories you read about earlier in the chapter, behavior genetics, ethology, sociobiology, and bioecological theories consider the role of the environment in development to varying degrees. But what are some of the important differences between learning theories and the perspectives that are described in this section?

The response entered here will appear in the performance dashboard and can be viewed by your instructor.

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2.5: Comparing Theories

After learning about theories, students usually want to know which one is right. However, developmentalists