GLOBAL EDITION

Lifespan Development

SEVENTH EDITION

Denise Boyd • Helen Bee

ALWAYS LEARNING

PEARSON

Lifespan **Development**

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Lifespan **Development**

Seventh Edition

Global Edition

Denise **Boyd**

Houston Community College System

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PEARSON

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This book is dedicated to my husband, Jerry Boyd,
in appreciation for the help and support he provided to me
while I was preparing the seventh edition of
Lifespan Development.

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Brief Contents

List of Features

No Easy Answers

Research Report

Developmental Science

Contents

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 seventh edition of *Lifespan Development*, I hoped to support lifespan development instructors by producing a textbook that thoroughly addresses the basic facts of development, makes the more abstract material about theories understandable to students, and motivates them to read the book by presenting information in a way that is both engaging and relevant to real-world applications of developmental science.

New to the Seventh Edition

Following are some highlights of this new edition:

- **In-text references to MyVirtualLife and MyPsychLab video series.** At the beginning of each chapter, students are prompted to relate the material in the chapter to *MyVirtualLife*, an engaging online simulation tool that allows users to raise a virtual child to live their own virtual lives. Once the virtual child has been raised, the students shift to exploring simulated outcomes of important life decisions such as career selection. New icons prompt students to access the exciting new MyPsychLab video series.
- **DSM-5 updates.** Discussions of mental health issues have been updated to conform to DSM-5 terminology and diagnostic criteria.
- **New and expanded coverage of atypical development and mental health.** This edition includes new information on these important mental health topics:
  - Reactive attachment disorder (Chapter 6)
  - Autism spectrum disorders (Chapter 6)
  - Disruptive mood dysregulation disorder (Chapter 8)
  - Childhood-onset conduct disorder (Chapter 10, Chapter 12)
  - Adolescent-onset conduct disorder (Chapter 12)
  - Bipolar disorder (Chapter 13)
  - Complicated grief (Chapter 19)
- **Improved art program.** A number of new figures have been added to this edition, while other figures and tables have been revised and updated with new illustrations.

LEARNING OBJECTIVES. The numbered learning objective questions are now more prominent in the seventh edition. These objectives are listed in the chapter opener, called out in their corresponding sections, and repeated in the chapter summary to facilitate student review. In addition, the Instructor's Manual and Test Bank correspond to these learning objectives, allowing you to assess your students' knowledge of key educational objectives.

TEST YOURSELF BEFORE GOING ON. The end of each section now contains brief quizzes with multiple-choice, true/false, fill-in-the-blank, and critical thinking questions for students to test their knowledge before moving on to the next section. The answers to these questions are provided at the back of the text.

CHAPTER TEST. A 25-question multiple-choice practice test now appears at the end of every chapter. The answers are provided at the back of the text, allowing students to assess their knowledge and prepare for course quizzes and exams.

INTEGRATED **MyPsychLab** RESOURCES. Throughout the text, we have placed MyPsychLab icons indicating where students can go to find web-based videos, simulations, and expanded information on particular topics. Many more resources are available in addition to those highlighted in the text, but the icons draw attention to some of the most high-interest materials available on www.MyPsychLab.com.

MyPsychLab

Watch the **Video** in **MyPsychLab**

Explore the **Concept** in **MyPsychLab**

Simulate the **Experiment** in **MyPsychLab**

Study and **Review** in **MyPsychLab**

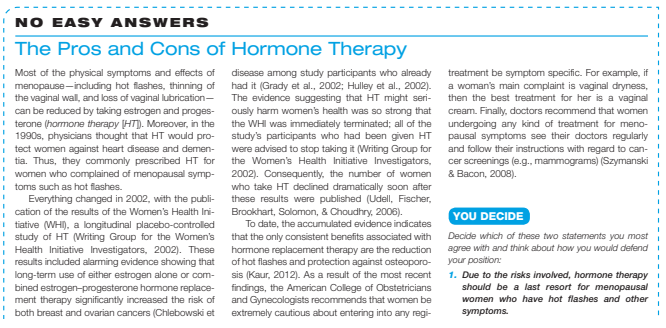
UPDATED RESEARCH.

- Genetic basis of neurodevelopmental disorders (Chapter 3)
- Language development in hearing infants of deaf parents (Chapter 5)
- Predictive validity of infant IQ tests (Chapter 5)
- Paternal influences on social development (Chapter 6)
- Genetics of hand dominance (Chapter 7)
- Insecure attachment and preschoolers' self-esteem (Chapter 8)
- Individual differences in the effects of spanking (Chapter 8)
- Cultural influences on the development of children's real and ideal selves (Chapter 10)
- Shifts in academic goals and their effects on children's achievement at the transition to middle school (Chapter 11)
- "Americanized" behavior as a source of conflict between immigrant teens and their parents (Chapter 12)
- Neurological basis of gender differences in responses to emotion-provoking stimuli (Chapter 13)
- Personality and career satisfaction (Chapter 14)
- Brain aging and image processing (Chapter 15)
- Effects of chronic disease on brain aging (Chapter 15)
- Terminal decline (Chapter 17)
- Depression among immigrant elders (Chapter 18)
- Effects of experience on information processing speed among the elderly (Chapter 18)
- Influence of young celebrities' deaths on their popularity among young adults (Chapter 19)

Themed Essays

NO EASY ANSWERS. The *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. Students are asked to take a stand on whether they feel that, due to the risks involved, hormone therapy should be a last resort or that, since 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.



NO EASY ANSWERS

The Pros and Cons of Hormone Therapy

Most of the physical symptoms and effects of menopause—including hot flashes, thinning of the vaginal wall, and loss of vaginal lubrication—can be reduced by taking estrogen and progesterone (*hormone therapy* [*HT*]). Moreover, in the 1990s, physicians thought that HT would protect women against heart disease and dementia. Thus, they commonly prescribed HT for women who complained of menopausal symptoms such as hot flashes.

Everything changed in 2002, with the publication of the results of the Women's Health Initiative (WHI), a longitudinal placebo-controlled study of HT (Writing Group for the Women's Health Initiative Investigators, 2002). These results included alarming evidence showing that long-term use of either estrogen alone or combined estrogen–progesterone hormone replacement therapy significantly increased the risk of both breast and ovarian cancers (Chlebowski et

disease among study participants who already had it (Grady et al., 2002; Hulley et al., 2002). The evidence suggesting that HT might seriously harm women's health was so strong that the WHI was immediately terminated; all of the study's participants who had been given HT were advised to stop taking it (Writing Group for the Women's Health Initiative Investigators, 2002). Consequently, the number of women who take HT declined dramatically soon after these results were published (Udell, Fischer, Brookhart, Solomon, & Choudhry, 2006).

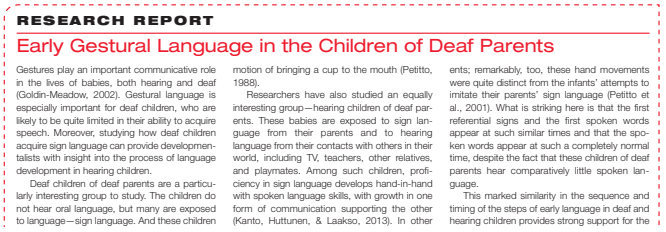
To date, the accumulated evidence indicates that the only consistent benefits associated with hormone replacement therapy are the reduction of hot flashes and protection against osteoporosis (Kaur, 2012). As a result of the most recent findings, the American College of Obstetricians and Gynecologists recommends that women be extremely cautious about entering into any regi-

treatment be symptom specific. For example, if a woman's main complaint is vaginal dryness, then the best treatment for her is a vaginal cream. Finally, doctors recommend that women undergoing any kind of treatment for menopausal symptoms see their doctors regularly and follow their instructions with regard to cancer screenings (e.g., mammograms) (Szymanski & Bacon, 2008).

YOU DECIDE

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

1. ***Due to the risks involved, hormone therapy should be a last resort for menopausal women who have hot flashes and other symptoms.***



RESEARCH REPORT

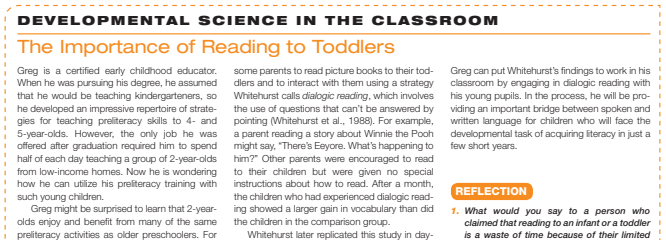
Early Gestural Language in the Children of Deaf Parents

Gestures play an important communicative role in the lives of babies, both hearing and deaf (Goldin-Meadow, 2002). Gestural language is especially important for deaf children, who are likely to be quite limited in their ability to acquire speech. Moreover, studying how deaf children acquire sign language can provide developmentalists with insight into the process of language development in hearing children.

Deaf children of deaf parents are a particularly interesting group to study. The children do not hear oral language, but many are exposed to language—sign language. And these children motion of bringing a cup to the mouth (Petitto, 1988).

Researchers have also studied an equally interesting group—hearing children of deaf parents. These babies are exposed to sign language from their parents and to hearing language from their contacts with others in their world, including TV, teachers, other relatives, and playmates. Among such children, proficiency in sign language develops hand-in-hand with spoken language skills, with growth in one form of communication supporting the other (Kanto, Huttunen, & Laakso, 2013). In other ents; remarkably, too, these hand movements were quite distinct from the infants' attempts to imitate their parents' sign language (Petitto et al., 2001). What is striking here is that the first referential signs and the first spoken words appear at such similar times and that the spoken words appear at such a completely normal time, despite the fact that these children of deaf parents hear comparatively little spoken language.

This marked similarity in the sequence and timing of the steps of early language in deaf and hearing children provides strong support for the



DEVELOPMENTAL SCIENCE IN THE CLASSROOM

The Importance of Reading to Toddlers

Greg is a certified early childhood educator. When he was pursuing his degree, he assumed that he would be teaching kindergarteners, so he developed an impressive repertoire of strategies for teaching preliteracy skills to 4- and 5-year-olds. However, the only job he was offered after graduation required him to spend half of each day teaching a group of 2-year-olds from low-income homes. Now he is wondering how he can utilize his preliteracy training with such young children.

Greg might be surprised to learn that 2-year-olds enjoy and benefit from many of the same preliteracy activities as older preschoolers. For some parents to read picture books to their toddlers and to interact with them using a strategy Whitehurst calls *dialogic reading*, which involves the use of questions that can't be answered by pointing (Whitehurst et al., 1988). For example, a parent reading a story about Winnie the Pooh might say, "There's Eeyore. What's happening to him?" Other parents were encouraged to read to their children but were given no special instructions about how to read. After a month, the children who had experienced dialogic reading showed a larger gain in vocabulary than did the children in the comparison group.

Whitehurst later replicated this study in day- Greg can put Whitehurst's findings to work in his classroom by engaging in dialogic reading with his young pupils. In the process, he will be providing an important bridge between spoken and written language for children who will face the developmental task of acquiring literacy in just a few short years.

REFLECTION

1. *What would you say to a person who claimed that reading to an infant or a toddler is a waste of time because of their limited*

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. "Critical Analysis" questions appear at the end of each feature to help students assess the research and make connections between the research study and their daily lives.

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 discusses the importance of reading to toddlers. 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 of these essays opens with a brief real-life vignette and concludes with "Reflection" questions.

Supplements for the Instructor

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 are available only to qualified instructors using the text. Please contact your local publishing representative for more information.

- **MyVirtualLife.** Raise your child. Live your life. MyVirtualLife is two simulations in one. The first simulation allows students to raise a child from birth to age 18 and monitor the effects of their parenting decisions over time. In the second simulation, students make first-person decisions and see the impacts of those decisions on their simulated future self over time. By incorporating physical, social, emotional, and cognitive development throughout the entire lifespan, MyVirtualLife helps students think critically as they apply their course work to their own virtual life. You can access MyVirtualLife within MyPsychLab or as a standalone product.
- **MyPsychLab.** Available at www.MyPsychLab.com, MyPsychLab is an online homework, tutorial, and assessment program that truly engages students in learning. It helps students better prepare for class, quizzes, and exams—resulting in better performance in the course. It provides educators a dynamic set of tools for gauging individual and class performance:
  - **Customizable.** MyPsychLab is customizable. Instructors can choose what a course looks like by easily turning homework, applications, and more on and off.

- **Blackboard single sign-on.** MyPsychLab can be used by itself or linked to any course management system. Blackboard single sign-on provides deep linking to all new MyPsychLab resources.
- **Pearson eText.** As with the printed text, with the eText, students can highlight relevant passages and add notes. The Pearson eText can be accessed through laptops, iPads, and tablets. Download the free Pearson eText app to use on tablets.
- **Assignment calendar and gradebook.** A drag-and-drop assignment calendar makes assigning and completing work easy. The automatically graded assessment provides instant feedback and flows into the gradebook, which can be used in MyPsychLab or exported.
- **Personalized study plan.** Students' personalized plans promote better critical thinking skills. The study plan organizes students' study needs into sections, such as Remembering, Understanding, Applying, and Analyzing.
- **MyPsychLab margin icons.** Margin icons guide students from their reading material to relevant videos and activities.
- **Class preparation tool.** Available for instructors within MyPsychLab, this exciting instructor resource makes lecture preparation easier and less time-consuming. MyClassPrep collects the very best class preparation resources—art and figures from our leading texts, videos, lecture activities, classroom activities, demonstrations, and much more—in one convenient online destination. You can search through MyClassPrep's extensive database of tools by content topic or by content type. You can select resources appropriate for your lecture, many of which can be downloaded directly; or you can build your own folder of resources and present from within MyClassPrep.

- **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: "At-a-Glance" grids, showcasing key supplemental resources available for instructors and students by chapter; a Chapter Overview; a list of the numbered Learning Objectives; and a complete Key Terms table, with page references. Each chapter also offers an extensive, detailed, and fully integrated Teaching Notes section with Discussion Launchers, Feature Box Activities, lists of available media to use in the classroom, 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 upon 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, as well as APA Learning Outcomes. In addition, questions may 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.
- **PowerPoint presentations.** The lecture slides include both a detailed lecture outline with select art from the text and a set of slides containing the complete art program from the book. The PowerPoint lecture slides are available for download via the Pearson Instructor's Resource Center (www.pearsonglobaleditions.com/Boyd) and on the MyPsychLab platform (www.MyPsychLab.com).

Video Resources for Instructors

The development video series in MyPsychLab engages students and brings to life a wide range of topics spanning the prenatal period through the end of the lifespan. This video collection contains a rich assortment of updated video clips for each chapter, including new sketchnote-style tutorials as well as cross-cultural footage and applied segments featuring real students

sharing their experiences. Many of these video segments are tied to quizzes or writing prompts and can be assigned through MyPsychLab.

Print and Media Supplements for the Student

- ***MyPsychLab.*** With this exciting new tool, students are able to self-assess using embedded diagnostic tests and instantly view results along with a customized study plan.

  The customized study plan will focus on the student's strengths and weaknesses, based on the results of the diagnostic testing, and present a list of activities and resources for review and remediation, organized by chapter section. Some study resources intended for use with portable electronic devices are made available exclusively through MyPsychLab, such as key terms flashcards and optimized video clips. Students will be able to quickly and easily analyze their own comprehension level of the course material and study more efficiently, leading to exceptional exam results! An access code is required and can be purchased at www.pearsonglobaleditions.com/Boyd or at www.MyPsychLab.com.

- ***MyVirtualLife.*** Raise your child. Live your life. MyVirtualLife is two simulations in one. The first simulation allows students to raise a child from birth to age 18 and monitor the effects of their parenting decisions over time. In the second simulation, students make first-person decisions and see the impact of those decisions on their simulated future self over time. By incorporating physical, social, emotional, and cognitive development throughout the entire lifespan, MyVirtualLife helps students think critically as they apply their course work to their own virtual life. You can access MyVirtualLife within MyPsychLab.

- ***CourseSmart eTextbook*.*** CourseSmart offers students an online subscription to *Lifespan Development*, seventh edition, at up to a 60% savings. With the CourseSmart eTextbook, students can search the text, make notes online, print out reading assignments that incorporate lecture notes, and bookmark important passages. Ask your Pearson sales representative for details or visit www.coursesmart.co.uk.

Supplementary Texts

Contact your Pearson representative to package any of these supplementary texts with *Lifespan Development*, seventh edition:

- ***Current Directions in Developmental Psychology*** **(ISBN: 0205597505).** This exciting reader includes more than 20 articles from the American Psychological Society that have been carefully selected for the undergraduate audience and taken from the very accessible *Current Directions in Psychological Science* journal. These timely, cutting-edge articles allow instructors to bring their students a real-world perspective about today's most current and pressing issues in psychology. The journal is discounted when packaged with this text for college adoptions.

- ***Twenty Studies That Revolutionized Child Psychology*** **by Wallace E. Dixon, Jr. (ISBN: 0130415723).** Presenting the seminal research studies that have shaped modern developmental psychology, this brief text provides an overview of the environment that gave rise to each study, its experimental design, its findings, and its impact on current thinking in the discipline.

- ***Human Development in Multicultural Contexts: A Book of Readings*** **(ISBN: 0130195235).** Written by Michele A. Paludi, this compilation of readings highlights cultural influences in developmental psychology.

- ***The Psychology Major: Careers and Strategies for Success*** **(ISBN: 0205684688).** Written by Eric Landrum (Idaho State University), Stephen Davis (Emporia State University), and Terri Landrum (Idaho State University), this 160-page paperback provides valuable

*This product may not be available in all markets. For more details, please visit www.coursesmart.co.uk or contact your local Pearson representative.

information on career options available to psychology majors, tips for improving academic performance, and a guide to the APA style of research reporting.

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—Denise Boyd

chapter 1

Human Development and Research Methodology

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,

LEARNING OBJECTIVES

AN INTRODUCTION TO HUMAN DEVELOPMENT

- **1.1** What ideas about development were proposed by early philosophers and scientists?
- **1.2** What is the lifespan perspective?
- **1.3** What major domains and periods do developmental scientists use to organize their discussions of the human lifespan?

KEY ISSUES IN THE STUDY OF HUMAN DEVELOPMENT

- **1.4** How do developmentalists view the two sides of the nature–nurture debate?
- **1.5** What is the continuity–discontinuity debate?
- **1.6** How do the three kinds of age-related change differ?
- **1.7** How does consideration of the contexts in which change occurs improve scientists' understanding of human development?

RESEARCH METHODS AND DESIGNS

- **1.8** What are the goals of scientists who study human development?
- **1.9** What descriptive methods do developmental scientists use?
- **1.10** What is the primary advantage of the experimental method?
- **1.11** What are the pros and cons of cross-sectional, longitudinal, and sequential research designs?
- **1.12** Why is cross-cultural research important to the study of human development?
- **1.13** What are the ethical standards that developmental researchers must follow?

MyVirtualLife

What decisions would you make while raising a child? What would the consequences of those decisions be?

Find out by accessing MyVirtualLife at www.MyPsychLab.com to raise a virtual child and live your own virtual life.

"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, the developmental pathway that each person follows results from the person's own characteristics, the choices that others make for her in childhood, and the decisions that she makes for herself in adulthood. These interactive effects are the driving theme behind *MyVirtualLife*, an online simulation that allows you to raise a child to adulthood and then adopt a first-person perspective to make decisions 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.

An Introduction to Human Development

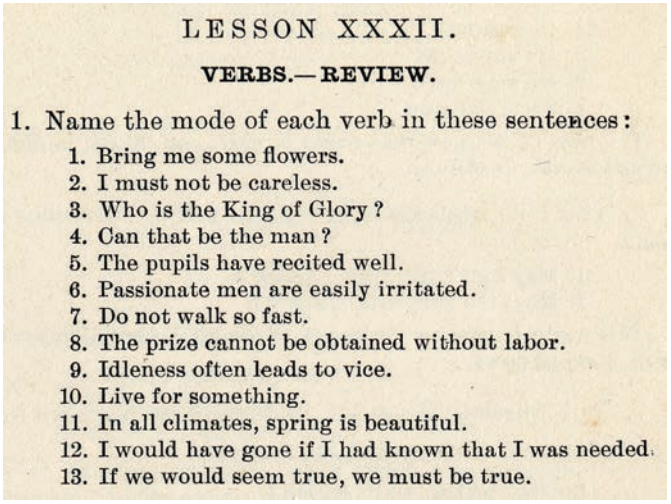
The field of **human development** is the scientific study of age-related changes in behavior, thinking, emotion, and personality. Long before the scientific method was used to study development, though, philosophers offered explanations for differences they observed in individuals of different ages. 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.

Philosophical and Scientific Roots

LO 1.1 What ideas about development were proposed by early philosophers and scientists?

human development the scientific study of age-related changes in behavior, thinking, emotion, and personality

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.



LESSON XXXII.

VERBS.—REVIEW.

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

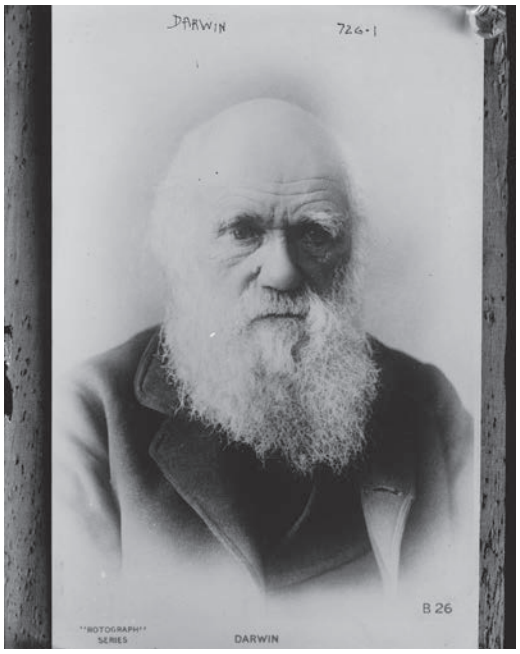
1. Bring me some flowers.
2. I must not be careless.
3. Who is the King of Glory?
4. Can that be the man?
5. The pupils have recited well.
6. Passionate men are easily irritated.
7. Do not walk so fast.
8. The prize cannot be obtained without labor.
9. Idleness often leads to vice.
10. Live for something.
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.

This 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.

ORIGINAL SIN, THE BLANK SLATE, AND INNATE GOODNESS Typically, 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. For example, 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.

By contrast, 17th-century English philosopher John Locke drew upon 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.

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 (Crain, 2011). 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.



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.

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. Charles Darwin, for example, became well known for his suggestion that the wide variety of life-forms that exist on the Earth evolved gradually as a result of the interplay between environmental factors and genetic processes. Moreover, 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 theory of evolution (Dewsbury, 2009). These were the first organized studies of human development.

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'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 (Crain, 2011). 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

norms average ages at which developmental milestones are reached

maturation the gradual unfolding of a genetically programmed sequential pattern of change

norm-referenced tests standardized tests that compare an individual child's score to the average score of others her age

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.

The Lifespan Perspective

LO 1.2 What is the lifespan perspective?

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.

The lifespan perspective recognizes that important changes occur throughout life.

The changes outlined above 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). Thus, 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 these 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). You will read more about Baltes's theories and his research in Chapters 17 and 18.

lifespan perspective the current view of developmentalists that important changes occur throughout the entire human lifespan and that these changes must be interpreted in terms of the culture and context in which they occur; thus, interdisciplinary research is critical to understanding human development

The Domains and Periods of Development

LO 1.3 What major domains and periods do developmental scientists use to organize their discussions of the human lifespan?

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

physical domain changes in the size, shape, and characteristics of the body

perceive the physical world, such as the gradual development of depth perception over the first year of life.

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.

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.

Developmental scientists also use a system of age-related categories known as *periods of development*. The first of these, 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. The next period, *infancy*, begins at birth and ends when children begin to use language to communicate, a milestone that marks the beginning of *early childhood*. Thus, while infancy begins at birth for all children, its end point can vary from one child to another. A social event—the child's entrance into school or some other kind of formal training—marks the transition from early to *middle childhood*. Consequently, 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 and the beginning of *adolescence*. Again, the timing of this transition varies across individuals. And when does adolescence end? One way of answering this question is by noting the legal boundaries that different cultures set for the end of adolescence and the beginning of *early 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 (*CIA World Factbook*, 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.

The transition from early to *middle adulthood*, generally thought to occur around age 40, is even more arbitrary. The timing of biological milestones that are associated with middle age, such as menopause, varies widely from one person to another. Thus, 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. Likewise, *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.

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 two 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.

cognitive domain changes in thinking, memory, problem solving, and other intellectual skills

social domain change in variables that are associated with the relationship of an individual to others

test yourself before going on

Study and Review in MyPsychLab

Answers to these questions can be found in the back of the book.

1. Write the name of the philosopher who is associated with each view of development.
   (1) original sin _____
   (2) blank slate _____
   (3) innate goodness _____
2. What did each of these early researchers do?
   (1) Charles Darwin _____
   (2) G. Stanley Hall _____
   (3) Arnold Gesell _____
3. The view that development from conception to death should be studied from multiple disciplinary perspectives is known as the _____ _____.
4. Give an example from the text of development in each domain.

Domain	Example
Physical	
Cognitive	
Social	

5. Fill in the milestones that mark the beginning and ending of each major period of development:

Period	Beginning Milestone	Ending Milestone
Prenatal		
Infancy		
Early childhood		
Middle childhood		
Adolescence		
Early adulthood		
Middle adulthood		
Late adulthood		

CRITICAL THINKING

6. What are the child-rearing implications of the original-sin, blank-slate, and innate-goodness views of development?

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.

Nature versus Nurture

LO 1.4 How do developmentalists view the two sides of the nature–nurture debate?

Some early developmentalists thought of change as resulting from *either* forces outside the person *or* forces inside the person. The debate about the relative contributions of biological processes and experiential factors to development is known as the **nature–nurture debate**. 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. For example, 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.

nature–nurture debate the debate about the relative contributions of biological processes and experiential factors to development

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.

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.

Continuity versus Discontinuity

LO 1.5 What is the continuity–discontinuity debate?

Another key issue in the study of human development is the *continuity–discontinuity* issue. The question is whether 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 (see Chapter 14). 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 (see Chapter 10). 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.

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

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. As you'll learn in Chapter 2, an important difference among theories of development is whether they assume that development occurs in stages or is primarily continuous in nature.

Three Kinds of Change

LO 1.6 How do the three kinds of age-related change differ?

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.

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

quantitative change a change in amount

qualitative change a change in kind or type

stages qualitatively distinct periods of development

normative age-graded changes changes that are common to every member of a species

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.

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, some changes are universal because of shared experiences. 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.

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.

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*).

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 concept related to timing has been that of on-time and 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.

social clock a set of age norms defining a sequence of life experiences that is considered normal in a given culture and that all individuals in that culture are expected to follow

ageism prejudicial attitudes about older adults that characterizes them in negative ways

normative history-graded changes changes that occur in most members of a cohort as a result of factors at work during a specific, well-defined historical period

nonnormative changes changes that result from unique, unshared events

critical period a specific period in development when an organism is especially sensitive to the presence (or absence) of some particular kind of experience

sensitive period 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