SPENCER A RATHUS

CDEV^2

CHILD AND ADOLESCENT DEVELOPMENT

4LTR PRESS

NOW WITH CDEV ONLINE

$85 US SUGGESTED RETAIL PRICE

Copyright 2018 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-203

THE 4LTR PRESS PROCESS

4LTR Press uses a Student-Tested, Faculty-Approved process to meet the unique needs of each course.

CDEV² combines an easy-reference, paperback textbook with portable summary tear-out chapter review cards and an innovative online experience — all at an affordable price. With up-to-date research and events, **CDEV²** covers the most significant topics in child development. Explore child development content anywhere, anytime, and on most devices with **CDEV Online**!

STUDENTS SAY

Students taking child development often find the theories and applications interesting, but are overwhelmed by the volume of key terms and scientific material. In addition to a visually engaging text, **CDEV Online** provides useful interactive resources such as brief video examples to help students better understand human development through adolescence and relate concepts to their everyday interactions.

STUDENT RESOURCES:

- Tear-Out Chapter Review Cards
- CDEV Online available at cengagebrain.com:
  - Interactive Reading
  - Interactive Figures
  - Videos
  - Practice Quizzes
  - Flashcards

INSTRUCTORS REQUIRE

Those teaching child development need learning solutions that engage today's students paired with up-to-date research and examples. **CDEV²** continues to focus on both current and historical events with personal stories to engage students. New to this edition, **CDEV Online** provides even more opportunities for students to understand core concepts in a visually engaging manner — while reading the chapter content online, befor your course lecture, or the night before an exam.

INSTRUCTOR RESOURCES
AVAILABLE AT CENGAGE.COM/LOGIN:

- All Student Resources
- Assignable Chapter Readings and Assessments
- LMS Integration
- Instructor's Manual
- Test Bank
- PowerPoint® Slides
- Discussion Questions

Copyright 2018 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-203

YOUR FEED-BACK YOUR BOOK

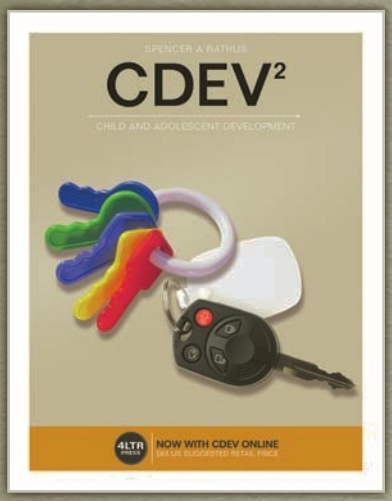
Our research never ends. Continual feedback from you ensures that we keep up with your changing needs.

4LTR PRESS

www.cengage.com/4LTRPRESS

CENGAGE Learning®

THE **CDEV** SOLUTION



CDEV² delivers all the key terms and core concepts for the **Child and Adolescent Development** course.

Print + Online

CDEV Online provides the complete narrative from the printed text with additional interactive media and the unique functionality of **StudyBits**—all available on nearly any device!

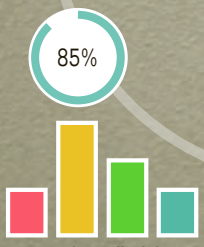
What is a StudyBit™? Created through a deep investigation of students' challenges and workflows, the StudyBit™ functionality of **CDEV Online** enables students of different generations and learning styles to study more effectively by allowing them to learn their way. Here's how they work:

Collect What's Important
Create StudyBits as you highlight text, images or take notes!

Rate and Organize StudyBits
Rate your understanding and use the color-coding to quickly organize your study time and personalize your flashcards and quizzes.

StudyBit™

Track/Monitor Progress
Use Concept Tracker to decide how you'll spend study time and study YOUR way!



Personalize Quizzes
Filter by your StudyBits to personalize quizzes or just take chapter quizzes off-the-shelf.

Copyright 2018 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-203

CDEV²

Spencer Rathus

Sr. Vice President, General Manager: Balraj Kalsi
Product Manager: Clinton Kernen
Content/Media Developer: Sarah Keeling
Product Assistant: Eli Lewis
Sr. Marketing Manager: Andrew Ginsberg
Marketing Coordinator: Quynton Johnson
Content Project Manager: Darrell E. Frye
Manufacturing Planner: Ron Montgomery
Production Service: SPi Global
Sr. Art Director: Bethany Casey
Internal Designer: Joe Devine, Red Hangar
Cover Designer: Lisa Kuhn, Curio Press, LLC/Trish & Ted Knapke, Ke Design
Cover Image: Comstock/Stockbyte/Getty Images, plherrera/E+/Getty Images
Special Page Images: Computer and tablet illustration: iStockphoto.com/furtaev; Smart phone Illustration: iStockphoto.com/dashadima; Feedback image: Rawpixel.com/Shutterstockcom
Intellectual Property Analyst: Alexandra Ricciardi
Intellectual Property Project Manager: Carly Belcher

© 2018, 2016 Cengage Learning®

ALL RIGHTS RESERVED. No part of this work covered by the copyright herein may be reproduced or distributed in any form or by any means, except as permitted by U.S. copyright law, without the prior written permission of the copyright owner.

For product information and technology assistance, contact us at
Cengage Learning Customer & Sales Support, 1-800-354-9706

For permission to use material from this text or product, submit all requests online at **www.cengage.com/permissions**
Further permissions questions can be emailed to
permissionrequest@cengage.com

Library of Congress Control Number: 2016963473

Student Edition ISBN: 978-1-337-11694-7

Student Edition with Online ISBN: 978-1-337-11692-3

Cengage Learning
20 Channel Center Street
Boston, MA 02210
USA

Cengage Learning is a leading provider of customized learning solutions with employees residing in nearly 40 different countries and sales in more than 125 countries around the world. Find your local representative at **www.cengage.com.**

Cengage Learning products are represented in Canada by Nelson Education, Ltd.

To learn more about Cengage Learning Solutions, visit **www.cengage.com**

Purchase any of our products at your local college store or at our preferred online store **www.cengagebrain.com**

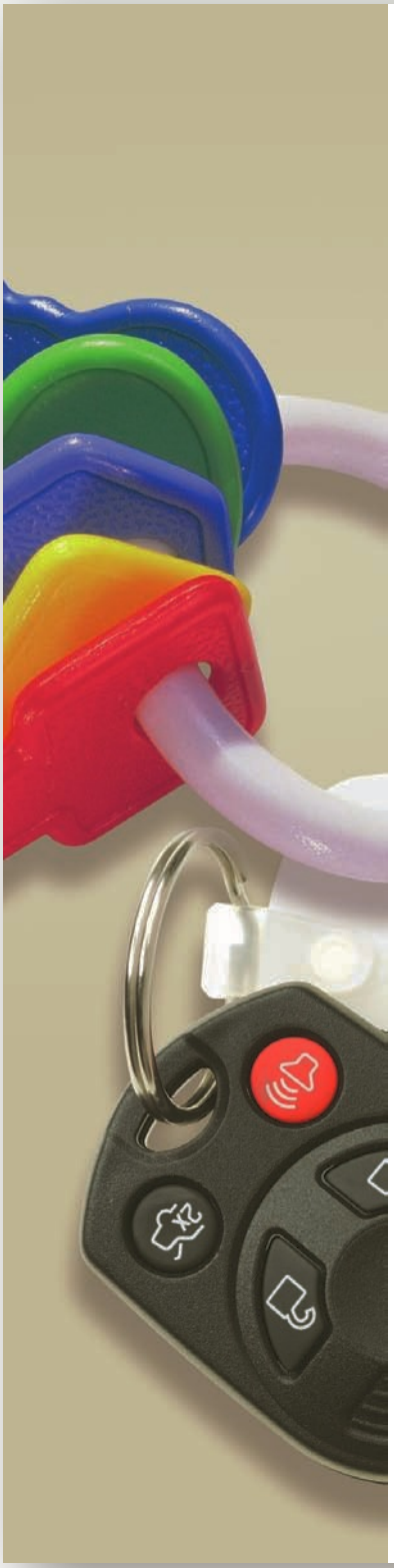
Printed in the United States of America
Print Number: 01 Print Year: 2017

Copyright 2018 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-203

SPENCER A. RATHUS

CDEV²

BRIEF CONTENTS



Comstock/Stockbyte/Getty Images, plherrera/E+/Getty Images

1 History, Theories, and Methods 2
2 Heredity 24
3 Conception and Prenatal Development 36
4 Birth and the Newborn Baby: In the New World 54
5 Infancy: Physical Development 74
6 Infancy: Cognitive Development 94
7 Infancy: Social and Emotional Development 114
8 Early Childhood: Physical Development 134
9 Early Childhood: Cognitive Development 146
10 Early Childhood: Social and Emotional Development 162
11 Middle Childhood: Physical Development 180
12 Middle Childhood: Cognitive Development 190
13 Middle Childhood: Social and Emotional Development 212
14 Adolescence: Physical Development 232
15 Adolescence: Cognitive Development 248
16 Adolescence: Social and Emotional Development 262

Answers to Study Tools Questions 280
References 282
Name Index 304
Subject Index 309

Copyright 2018 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-203

CONTENTS

Image Source/Alamy Stock Photo

iStockphoto.com/Sdavidi

1 History, Theories, and Methods 2

1-1 The Development of the Study of Child Development 3
1-2 Theories of Development 4
1-3 Controversies in Development 15
1-4 How do we Study Development? 17

2 Heredity 24

2-1 Heredity: The Basics 25
2-2 Chromosomal and Genetic Abnormalities 29
2-3 Genetic Counseling and Prenatal Testing 31
2-4 Heredity and the Environment 33

3 Conception and Prenatal Development 36

3-1 Conception: Against all Odds 37
3-2 Infertility and Alternate ways of Becoming Parents 39
3-3 Stages of Prenatal Development 41
3-4 Environmental Influences on Prenatal Development 44

4 Birth and the Newborn Baby: In the New World 54

Countdown … 55
4-1 The Stages of Childbirth 56
4-2 Methods of Childbirth 58
4-3 Birth Problems 60
4-4 The Postpartum Period 61
4-5 Characteristics of Neonates 66

5 Infancy: Physical Development 74

5-1 Physical Growth and Development 75
5-2 Development of the Brain and Nervous System 79
5-3 Motor Development 83
5-4 Sensory and Perceptual Development 85

6 Infancy: Cognitive Development 94

6-1 Cognitive Development: Jean Piaget 95
6-2 Information Processing 99

Copyright 2018 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-203

6-3 Individual Differences in Cognitive Functioning among Infants 101
6-4 Language Development 103

7 Infancy: Social and Emotional Development 114

7-1 Attachment: Bonds that Endure 115
7-2 When Attachment Fails 119
7-3 Day Care 124
7-4 Emotional Development 126
7-5 Personality Development 128

Joakim Leroy/E+/Getty Images

8 Early Childhood: Physical Development 134

8-1 Growth Patterns 135
8-2 Motor Development 137
8-3 Health and Illness 140
8-4 Sleep 142
8-5 Elimination Disorders 143

9 Early Childhood: Cognitive Development 146

9-1 Jean Piaget's Preoperational Stage 147
9-2 Factors in Cognitive Development 152
9-3 Theory of Mind 153
9-4 Development of Memory 154
9-5 Language Development: Why "Daddy Goed Away" 155

10 Early Childhood: Social and Emotional Development 162

10-1 Dimensions of Child Rearing 163
10-2 Social Behaviors 166
10-3 Personality and Emotional Development 172
10-4 Development of Gender Roles and Gender Differences 174

11 Middle Childhood: Physical Development 180

11-1 Growth Patterns 181
11-2 Weight 181
11-3 Childhood Asthma 183
11-4 Motor Development 184
11-5 Attention-Deficit/Hyperactivity Disorder (ADHD) 185
11-6 Learning Disorders 186

12 Middle Childhood: Cognitive Development 190

12-1 Piaget: The Concrete-Operational Stage 191
12-2 Moral Development: The Child as Judge 193
12-3 Information Processing: Learning, Remembering, Problem Solving 195
12-4 Intellectual Development, Creativity, and Achievement 200
12-5 Language Development and Literacy 208

13 Middle Childhood: Social and Emotional Development 212

13-1 Theories of Social and Emotional Development in Middle Childhood 213
13-2 The Family 216
13-3 Peer Relationships 218
13-4 The School 221
13-5 Social and Emotional Problems 224

Copyright 2018 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-203

rubberball/Getty Images

14 Adolescence: Physical Development 232

14-1 Puberty: The Biological Eruption 233

14-2 Emerging Sexuality and the Risks of Sexually Transmitted Infections 238

14-3 Health in Adolescence 240

14-4 Eating Disorders 241

14-5 Substance Use and Substance Use Disorders 242

15 Adolescence: Cognitive Development 248

15-1 Piaget's Stage of Formal Operations 249

15-2 Gender Differences in Cognitive Abilities 251

15-3 Moral Development 252

15-4 The Adolescent in School 254

15-5 Adolescents in the Workforce 255

16 Adolescence: Social and Emotional Development 262

16-1 Development of Identity: "Who am I?" 263

16-2 Relationships with Parents and Peers 266

16-3 Sexuality 269

16-4 Juvenile Delinquency 275

16-5 Suicide: When the Adolescent has Nothing—Except Everything—to Lose 275

Answers to Study Tools Questions 280

References 282

Name Index 304

Subject Index 309

Copyright 2018 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-203

YOUR FEEDBACK MATTERS.

www.cengage.com/4ltrpress

Copyright 2018 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-203

1 History, Theories, and Methods

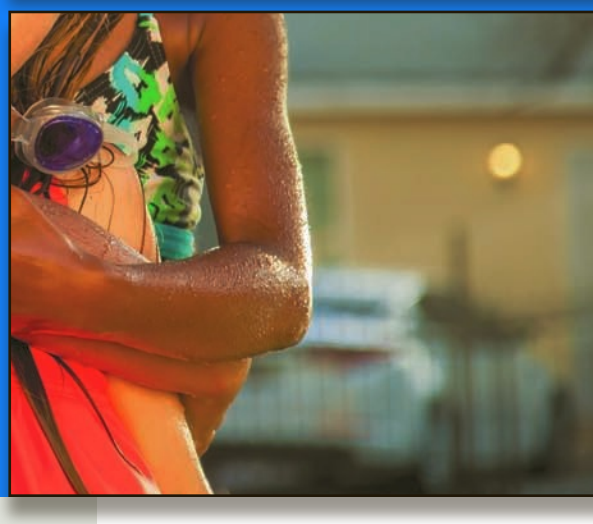


Image Source/Alamy Stock Photo

LEARNING OUTCOMES

After studying this chapter, you will be able to…

- 1-1 Relate the history of the study of child development
- 1-2 Compare and contrast theories of child development
- 1-3 Enumerate key controversies in child development
- 1-4 Describe ways in which researchers study child development

After you finish this chapter, go to PAGE 21 for STUDY TOOLS

Copyright 2018 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-203

This book has a story to tell. An important, remarkable story—your story. It is about the amazing journey you have already taken through childhood, and about the unfolding of your adult life. Billions of people have made this journey before. You have much in common with them. Yet you are unique, and things will happen to you, and because of you, that have never happened before.

You are unique, and things will happen to you, and because of you, that have never happened before.

1-1 THE DEVELOPMENT OF THE STUDY OF CHILD DEVELOPMENT

Developmental psychology is the discipline that studies the physical, cognitive, social, and emotional development of humans. It focuses on the many influences on behavior, including the effects of the person's physical, social, and cultural environment, and how these factors interact to influence the developments that occur over time.

Scientific inquiry into human development has existed for little more than a century. In ancient times and in the Middle Ages, children often were viewed as innately evil and discipline was harsh. Legally, medieval children were treated as property and servants. They could be sent to the monastery, married without consultation, or convicted of crimes. Children were nurtured until they were seven years old, which was considered the "age of reason." Then they were expected to work alongside adults in the home and in the field.

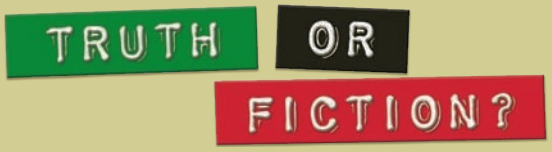
The transition to modern thinking about children is marked by the writings of philosophers such as John Locke and Jean-Jacques Rousseau. Englishman John Locke (1632–1704) believed that the child came into the world as a *tabula rasa*—a "blank tablet" or clean slate—that was written on by experience. Locke did not believe that inborn predispositions toward good or evil played an important role in the conduct of the child. Instead, he focused on the role of the environment or of experience. Locke believed that social approval and disapproval are powerful shapers of behavior. But Jean-Jacques Rousseau (1712–1778), a Swiss-French philosopher, argued that children are inherently good and that, if allowed to express their natural impulses, they will develop into generous and moral individuals.

During the Industrial Revolution—a period from the late 18th century through the 19th century when machine-based production replaced much manual labor—family life came to be defined in terms of the nuclear unit of mother, father, and children rather than the extended family. Children became more visible, fostering awareness of childhood as a special time of life. Still, children often labored in factories from dawn to dusk through the early years of the 20th century.

In the 20th century, laws were passed to protect children from strenuous labor, to require that they attend school until a certain age, and to prevent them from getting married or being sexually exploited. Whereas children were once considered the property of parents, laws now protect children from abuse by parents and other adults. Juvenile courts see that children who break the law receive treatment in the criminal justice system.

Various thoughts about child development coalesced into a field of scientific study in the 19th and early 20th centuries. G. Stanley Hall (1844–1924) is credited with founding child development as an academic discipline and bringing scientific attention to

developmental psychology
the discipline that studies the physical, cognitive, social, and emotional development of humans.

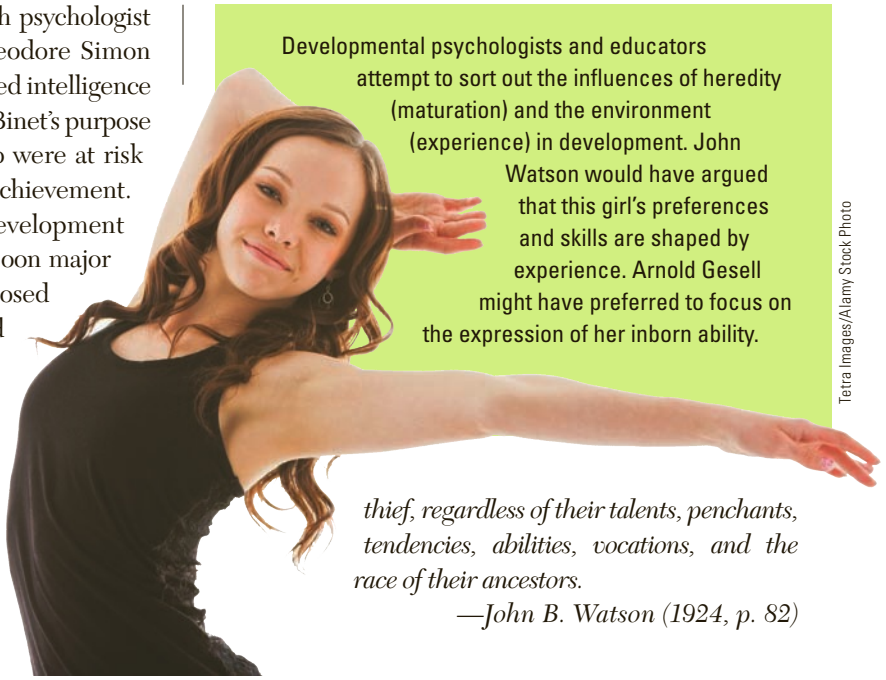


WHAT DO YOU THINK? FOLKLORE, COMMON SENSE, OR NONSENSE? SELECT T FOR "TRUTH" OR F FOR "FICTION," AND CHECK THE ACCURACY OF YOUR ANSWERS AS YOU READ THROUGH THE CHAPTER.

T	F	During the Middle Ages, children were often treated as miniature adults.
T	F	Nail biting and smoking cigarettes are signs of conflict experienced during early childhood.
T	F	Research with monkeys has helped psychologists understand the formation of attachment in humans.
T	F	To learn how a person develops over a lifetime, researchers have tracked some individuals for more than 50 years.

Copyright 2018 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-203

focus on the period of adolescence. French psychologist Alfred Binet (1857–1911), along with Theodore Simon (1872–1961), developed the first standardized intelligence test near the beginning of the 20th century. Binet's purpose was to identify public school children who were at risk of falling behind their peers in academic achievement. By the start of the 20th century, child development had emerged as a scientific field of study. Soon major theories of the developing child were proposed by theorists such as Arnold Gesell, Sigmund Freud, John B. Watson, and Jean Piaget.



Developmental psychologists and educators attempt to sort out the influences of heredity (maturation) and the environment (experience) in development. John Watson would have argued that this girl's preferences and skills are shaped by experience. Arnold Gesell might have preferred to focus on the expression of her inborn ability.

Tetra Images/Alamy Stock Photo

1-1a WHY DO RESEARCHERS STUDY CHILD DEVELOPMENT?

Curiosity and love of children are two key motives for studying child development. There are other motives as well:

- To gain insight into the nature of human nature—whether children are aggressive or loving, whether children are conscious and self-aware, whether they have a natural curiosity that demands to unravel the mysteries of the universe, or whether they merely react mechanically to environmental stimulation.
- To gain insight into the origins of adult behavior—the origins of empathy, of antisocial behavior, of special talents in writing, music, athletics, and math?
- To gain insight into the origins of gender roles and gender differences.
- To gain insight into the origins, prevention, and treatment of developmental problems such as fetal alcohol syndrome, PKU, SIDS, Down syndrome, autism, hyperactivity, dyslexia, and child abuse.
- To optimize conditions for development in areas such as nutrition, immunizations, parent–child interaction, and education.

1-2 THEORIES OF DEVELOPMENT

Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in, and I'll guarantee to train them to become any type of specialist I might suggest—doctor, lawyer, merchant, chief, and, yes, even beggar and thief, regardless of their talents, penchants, tendencies, abilities, vocations, and the race of their ancestors.

—John B. Watson (1924, p. 82)

behaviorism Watson's view that science must study observable behavior only and investigate relationships between stimuli and responses.

TRUTH

T **F** During the Middle Ages, children were often treated as miniature adults.

It is true that during the Middle Ages, children were often treated as miniature adults. This does not mean that they were given more privileges, however. Instead, more was expected of them.

Theories are formulations of apparent relationships among observed events. They allow us to derive explanations and predictions. Many psychological theories combine statements about behavior (such as reflexes), mental processes (such as whether a reflex is intentional or not), and biological processes (such as maturation of the nervous system). A satisfactory theory allows us to predict behavior. For example, a theory about a reflex should allow us to predict the age at which it will drop out or be replaced by intentional behavior. John B. Watson (1878–1958), the founder of American **behaviorism**, viewed development in terms of learning theory. He generally agreed with Locke that children's ideas, preferences, and skills are shaped by experience. There has been a long-standing nature–nurture debate in the study of children. In his theoretical approach to understanding children, Watson came down on the side of nurture—the importance of the physical and social environments—as found, for example, in parental training and approval.

Copyright 2018 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-203

Arnold Gesell expressed the opposing idea that biological **maturation** was the main principle of development: "All things considered, the inevitability and surety of maturation are the most impressive characteristics of early development. It is the hereditary ballast which conserves and stabilizes growth of each individual infant" (Gesell, 1928, p. 378). Watson was talking about the behavior patterns that children develop, whereas Gesell was focusing mainly on physical aspects of growth and development.

Theories such as behavioral theory and maturational theory help developmentalists explain, predict, and influence the events they study. Let's consider theories that are popular among developmentalists today. They fall within broad perspectives on development.

Courtesy of the Ferdinand Hamburger Archives of The Johns Hopkins University

According to John B. Watson (1878–1958), the founder of American behaviorism, a theory about a reflex should allow us to predict the age at which it will drop out or be replaced by intentional behavior. Here Watson is demonstrating the grasp reflex of a newborn infant.

1-2a THE PSYCHOANALYTIC PERSPECTIVE

A number of theories fall within the psychoanalytic perspective. Each owes its origin to Sigmund Freud and views children—and adults—as caught in conflict. Early in development, the conflict is between the child and the world outside. The expression of basic drives, such as sex and aggression, conflict with parental expectations, social rules, moral codes, even laws. But the external limits—parental demands and social rules—are brought inside or *internalized*. Once internalization occurs, the conflict takes place between opposing *inner* forces. The child's observable behavior, thoughts, and feelings reflect the outcomes of these hidden battles.

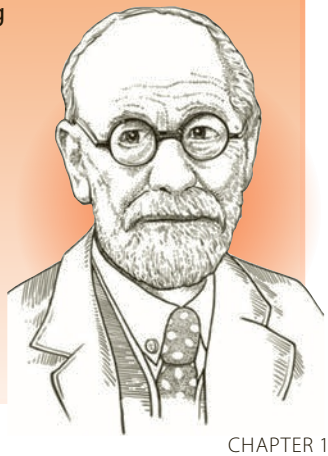
Let's consider Freud's theory of **psychosexual development** and Erik Erikson's theory of psychosocial development. Each is a **stage theory** that sees children as developing through distinct periods of life. Each suggests that the child's experiences during early stages affect the child's emotional and social life at the time and later on.

SIGMUND FREUD'S THEORY OF PSYCHOSEXUAL DEVELOPMENT Sigmund Freud's (1856–1939) theory of psychosexual development focused on emotional and social development and on the origins of psychological traits such as dependence, obsessive neatness, and vanity. Freud theorized three parts of the personality: the *id*, *ego*, and *superego*. The id is present at birth and is *unconscious*. It represents biological drives and demands instant gratification, as suggested by a baby's wailing. The ego, or the conscious sense of self, begins to develop when children learn to obtain gratification consciously, without screaming or crying. The ego curbs the appetites of the id and makes plans that are in keeping with social conventions so that a person can find gratification but avoid social disapproval. The superego develops throughout infancy and early childhood. It brings inward the wishes and morals of the child's caregivers and other members of the community. Throughout the remainder of the child's life, the superego will monitor the intentions and behavior of the ego, hand down judgments of right and wrong,

FREUD'S THEORY OF PSYCHOSEXUAL DEVELOPMENT

Sigmund Freud's (1856–1939) theory of psychosexual development focused on emotional and social development and on the origins of psychological traits such as dependence, obsessive neatness, and vanity. According to Freud, there are five stages of psychosexual development:

- oral
- anal
- phallic
- latency
- genital



maturation the unfolding of genetically determined traits, structures, and functions.

psychosexual development the process by which libidinal energy is expressed through different erogenous zones during different stages of development.

stage theory a theory of development characterized by distinct periods of life.

Copyright 2018 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-203

and attempt to influence behavior through flooding the person with feelings of guilt and shame when the judgment is in the negative.

According to Freud, there are five stages of psychosexual development: *oral*, *anal*, *phallic*, *latency*, and *genital*. If a child receives too little or too much gratification during a stage, the child can become *fixated* in that stage. For example, during the first year of life, which Freud termed the *oral stage*, "oral" activities such as sucking and biting bring pleasure and gratification. If the child is weaned early or breast-fed too long, the child may become fixated on oral activities such as nail biting or smoking, or even show a "biting wit."

FICTION

T (F) Nail biting and smoking cigarettes are signs of conflict experienced during early childhood.

Actually, there is no evidence that nail biting and smoking cigarettes are signs of early childhood conflict. The statement must therefore be considered "fiction."

In the second, or *anal*, stage, gratification is obtained through control and elimination of waste products. Excessively strict or permissive toilet training can lead to the development of anal-retentive traits, such as perfectionism and neatness, or anal-expulsive traits, such as sloppiness and carelessness. In the third stage, the *phallic stage*, parent–child conflict may develop over masturbation, which many parents treat with punishment and threats. It is normal for children to develop strong sexual attachments to the parent of the other sex during the phallic stage and to begin to view the parent of the same sex as a rival.

By age five or six, Freud believed, children enter a *latency stage* during which sexual feelings remain unconscious, children turn to schoolwork, and they typically prefer playmates of their own sex. The final stage of psychosexual development, the *genital stage*, begins with the biological changes that usher in adolescence. Adolescents generally desire sexual gratification through intercourse with a member of the other sex. Freud believed that oral or anal stimulation, masturbation, and male–male or female–female sexual activity are immature forms of sexual conduct that reflect fixations at early stages of development.

psychosocial development
Erikson's theory, which emphasizes the importance of social relationships and conscious choice throughout eight stages of development.

Evaluation Freud's views about the anal stage have influenced child-care workers to recommend that toilet training not be started too early or handled punitively. His emphasis on the emotional needs of children has influenced educators to be more sensitive to the possible emotional reasons behind a child's misbehavior. Freud's work has also been criticized. For one thing, Freud developed his theory on the basis of contacts with adult patients (mostly women) (Hergenhahn & Henley, 2014), rather than observing children directly. Freud may also have inadvertently guided patients into expressing ideas that confirmed his views.

Some of Freud's own disciples, including Erik Erikson, believe that Freud placed too much emphasis on basic instincts and unconscious motives. He argues that people are motivated not only by drives such as sex and aggression but also by social relationships and conscious desires to achieve, to have aesthetic experiences, and to help others.

ERIK ERIKSON'S THEORY OF PSYCHOSOCIAL DEVELOPMENT Erik Erikson (1902–1994) modified Freud's theory and extended it through the adult years. Erikson's theory, like Freud's, focuses on the development of the emotional life and psychological traits, but Erikson focuses on social relationships rather than sexual or aggressive instincts. Therefore, Erikson speaks of **psychosocial development** rather than of *psychosexual development*. Furthermore, Erikson places greater emphasis on the ego, or the sense of self. Erikson (1963) extended Freud's five stages to eight to include the concerns of

ERIKSON'S THEORY OF PSYCHOSOCIAL DEVELOPMENT

Erik Erikson (1902–1994) modified Freud's psychosexual theory and extended it through the adult years. Erikson's theory, like Freud's, focuses on the development of the emotional life and psychological traits, but Erikson focuses on social relationships rather than sexual or aggressive instincts. He expanded Freud's five stages to eight, to include the stages of adult development.

Copyright 2018 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-203

Richard Ransier/Cardinal/Corbis

Erik Erikson was concerned with the development of our sense of identity—who we are and what we stand for. He was especially concerned with the crisis in identity that affects adolescents in our culture. How would you describe this adolescent's apparent sense of identity?

adulthood. Rather than label his stages after parts of the body, Erikson labeled them after the **life crisis** that people might encounter during that stage.

Erikson proposed that social relationships and physical maturation give each stage its character. For example, the parent–child relationship and the infant's dependence and helplessness are responsible for the nature of the earliest stages of development.

Early experiences affect future developments. With parental support, most children resolve early life crises productively. Successful resolution of each crisis bolsters their sense of identity—of who they are and what they stand for—and their expectation of future success.

Erikson's views, like Freud's, have influenced child rearing, early childhood education, and child therapy. For example, Erikson's views about an adolescent **identity crisis** have entered the popular culture and have affected the way many parents and teachers deal with teenagers. Some schools help students master the crisis by means of life-adjustment courses and study units on self-understanding in social studies and literature classes.

Evaluation Erikson's views are appealing in that they emphasize the importance of human consciousness and choice. They are also appealing in that they portray us as prosocial and helpful, whereas Freud portrayed us as selfish and needing to be compelled to comply with social rules. There is also some empirical support for the Eriksonian view that positive outcomes of early life crises help put us on the path to positive development (Gfellner & Armstrong, 2012; Marcia, 2010).

1-2b THE LEARNING PERSPECTIVE: BEHAVIORAL AND SOCIAL COGNITIVE THEORIES

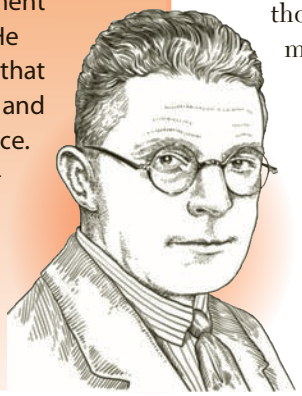
During the 1930s, psychologists derived an ingenious method for helping five- and six-year-old children overcome bed-wetting from the behavioral perspective. Most children at this age wake up and go to the bathroom when their bladders are full. Bed wetters, though, sleep through bladder tension and reflexively urinate in bed. To address this problem, the psychologists placed a special pad beneath the sleeping child. Wetness in the pad closed an electrical circuit, causing a bell to ring and waking the sleeping child. After several repetitions, most children learned to wake up before they wet the pad. How? They learned through a technique called *classical conditioning*, which we explain in this section.

The so-called bell-and-pad method for bed-wetting is a more complicated example of learning theory being applied to human development. Most applications of learning theory to development are found in simpler, everyday events. In this section, we consider two theories of learning: behaviorism and social cognitive theory.

BEHAVIORISM John B. Watson argued that a scientific approach to development must focus on observable behavior only and not on things like thoughts, fantasies, and other mental images.

WATSON: THE FOUNDER OF AMERICAN BEHAVIORISM

John B. Watson (1878–1958) is considered the founder of American behaviorism. He was a major force in early 20th century psychology, arguing that psychologists should study only observable behavior, not thoughts, fantasies, and other mental images. He viewed development in terms of learning theory. He generally agreed with Locke that children's ideas, preferences, and skills are shaped by experience. In the long-standing nature–nurture debate in the study of children, his theoretical approach to understanding children comes down on the side of nurture.

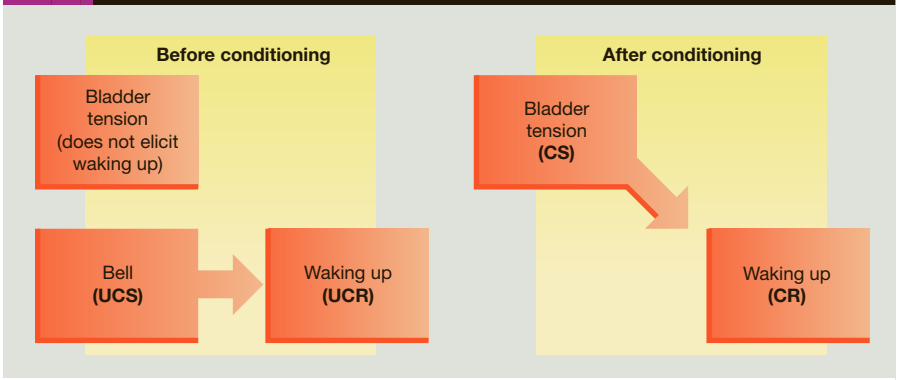


life crisis an internal conflict that attends each stage of psychosocial development.

identity crisis according to Erikson, a period of inner conflict during which one examines one's values and makes decisions about one's life roles.

Copyright 2018 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-203

FIG.1.1 SCHEMATIC REPRESENTATION OF CLASSICAL CONDITIONING



Before conditioning, the bell is an unlearned or unconditioned stimulus (UCS) that elicits waking up, which is an unlearned or unconditioned response (UCR). Bladder tension does not elicit waking up, which is the problem. During the conditioning procedure, bladder tension repeatedly precedes urination, which in turn causes the bell to ring. After several repetitions, bladder tension has become associated with the bell, making bladder tension into a learned or conditioned stimulus (CS) that causes the child to awaken. Awakening in response to bladder tension is a learned or conditioned response (CR).

Classical conditioning is a simple form of learning in which an originally neutral stimulus comes to bring forth, or elicit, the response usually brought forth by a second stimulus as a result of being paired repeatedly with the second stimulus. In the bell-and-pad method for bed-wetting, psychologists repeatedly pair tension in the children's bladders with a stimulus that awakens them (the bell). The children learn to respond to the bladder tension as if it were a bell; that is, they wake up (see Figure 1.1).

classical conditioning a simple form of learning in which one stimulus comes to bring forth the response usually brought forth by a second stimulus by being paired repeatedly with the second stimulus.

operant conditioning a simple form of learning in which an organism learns to engage in behavior that is reinforced.

reinforcement the process of providing stimuli following responses that increase the frequency of the responses.

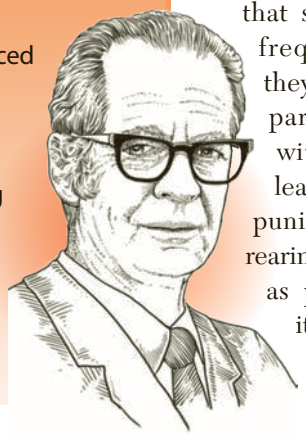
positive reinforcer a reinforcer that, when applied, increases the frequency of a response.

negative reinforcer a reinforcer that, when removed, increases the frequency of a response.

extinction the cessation of a response that is performed in the absence of reinforcement.

SKINNER AND BEHAVIORISM

B.F. Skinner (1904–1990) picked up the behaviorist mandate from John Watson. Behaviorists argue that much emotional learning is acquired through conditioning. Skinner introduced the key concept of positive and negative reinforcement in operant conditioning. He was interested in popularizing his views on psychology and wrote a novel, *Walden Two*, which supported his views and achieved a sort of cult following.

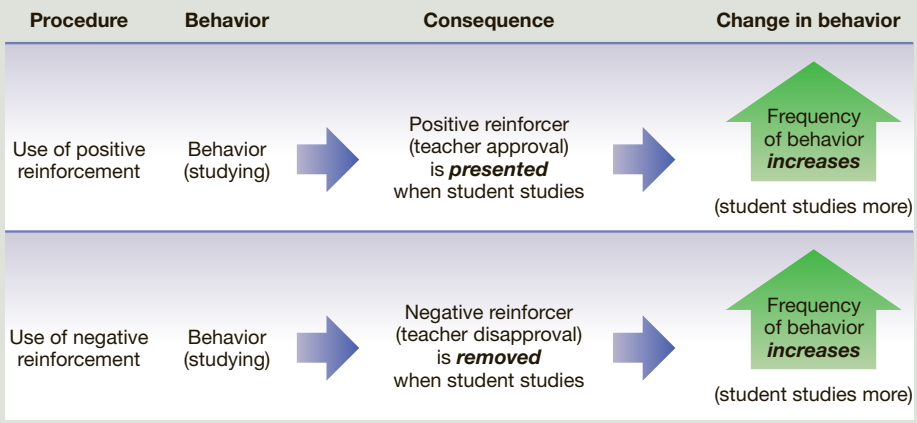


Behaviorists argue that much emotional learning is acquired through classical conditioning. In **operant conditioning** (a different kind of conditioning), children learn to do something because of its effects. B. F. Skinner introduced the key concept of **reinforcement**. Reinforcers are stimuli that increase the frequency of the behavior they follow. Most children learn to adjust their behavior to conform to social codes and rules to earn reinforcers such as the attention and approval of their parents and teachers. Other children, ironically, may learn to misbehave because misbehavior also draws attention. Any stimulus that increases the frequency of the responses preceding it serves as a reinforcer. Skinner distinguished between positive and negative reinforcers. **Positive reinforcers** increase the frequency of behaviors when they are *applied*. Food and approval usually serve as positive reinforcers. **Negative reinforcers** increase the frequency of behaviors when they are *removed*. Fear acts as a negative reinforcer in that its removal increases the frequency of the behaviors preceding it. Figure 1.2 compares positive and negative reinforcers.

Extinction results from repeated performance of operant behavior without reinforcement. After a number of trials, the operant behavior is no longer shown. Children's temper tantrums and crying at bedtime can often be extinguished by parents' remaining out of the bedroom after the children have been put to bed. Punishments are aversive events that suppress or *decrease* the frequency of the behavior they follow. (Figure 1.3 compares negative reinforcers with punishments.) Many learning theorists agree that punishment is undesirable in rearing children for reasons such as punishment does not in itself suggest an alternative acceptable form of behavior; punishment tends

Copyright 2018 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-203

FIG.1.2 POSITIVE VERSUS NEGATIVE REINFORCERS



Reinforcers, by definition, increase the frequency of behavior. In this example, teacher approval is a positive reinforcer because it increases the frequency of behavior when it is *applied*. Teacher disapproval functions as a negative reinforcer because *removing* it increases behavior—in this case, studying. But teacher disapproval can backfire when other students show strong approval of a student's disobeying the teacher.

to suppress behavior only when its delivery is guaranteed; and punishment can create feelings of anger and hostility.

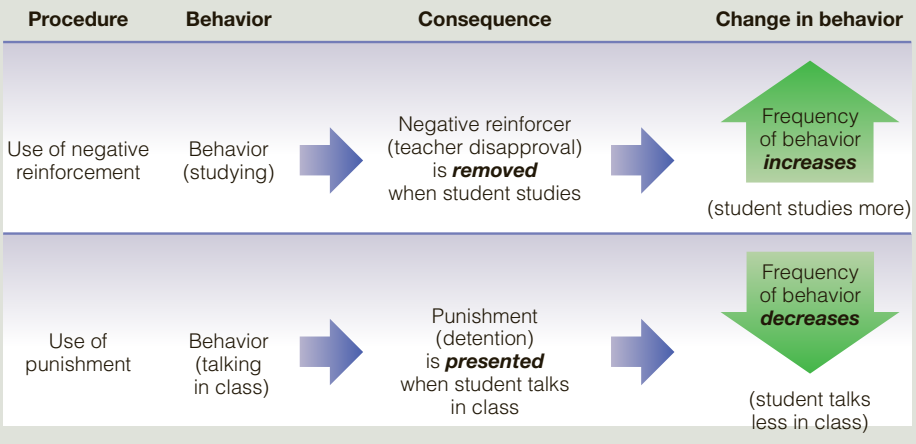
Research suggests that when teachers praise and attend to appropriate behavior and ignore misbehavior, studying and classroom behavior improve while disruptive and aggressive behaviors decrease (Coffee & Kratochwill, 2013; Jenkins et al., 2015). By ignoring misbehavior or by using *time out* from positive reinforcement, we can avoid reinforcing children for misbehavior. In using time out, children are placed in drab, restrictive environments for a specified time period such as ten minutes when they behave disruptively.

Operant conditioning is used every day in the *socialization* of young children. Parents and peers influence children to acquire behavior patterns they consider to be appropriate to their gender through the elaborate use of rewards and punishments. Thus, boys may ignore other boys when they play with dolls and housekeeping toys but play with boys when they use transportation toys. Many children are thus taught to engage in behavior that may please others more than it pleases themselves.

SOCIAL COGNITIVE THEORY Behaviorists tend to limit their view of learning to conditioning. **Social cognitive theorists** such as Albert Bandura (1986, 2011, 2012) have shown that much learning also occurs by observing other people, reading, and viewing characters in the media. People may need practice to refine their skills, but they can acquire the basic know-how through observation.

Observational learning occurs when children observe how parents cook, clean, or repair a broken appliance. It takes place when adults watch supervisors sketch out sales strategies on a blackboard or hear them speak a foreign language. In social cognitive theory, the people after whom we pattern our own behavior are termed *models*.

FIG.1.3 NEGATIVE REINFORCERS VERSUS PUNISHMENTS



Both negative reinforcers and punishments tend to be aversive stimuli. Reinforcers, however, increase the frequency of behavior. Punishments decrease the frequency of behavior. Negative reinforcers increase the frequency of behavior when they are removed.

social cognitive theory a cognitively oriented learning theory that emphasizes observational learning.

Copyright 2018 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-203

BANDURA AND SOCIAL COGNITIVE THEORY

Albert Bandura (b. 1925), a leading social cognitive theorist, emphasized the role of social learning—that is, learning by observing others—as a key element in learning theory. He labeled the people after whom we, as children and adults, pattern our behavior "models." While behaviorists tend to limit their view of learning to conditioning, social cognitive theorists focus on modeling behavior.

EVALUATION OF LEARNING THEORIES Learning theories allow us to explain, predict, and influence many aspects of behavior. The use of the bell-and-pad method for bed-wetting would probably not have been derived from any other theoretical approach. Many of the teaching approaches used in educational TV shows are based on learning theory.

1-2c THE COGNITIVE PERSPECTIVE

Cognitive theorists focus on people's mental processes. They investigate the ways in which children perceive and mentally represent the world, how they develop thinking, logic, and problem-solving ability. One cognitive perspective is **cognitive-developmental theory**, advanced by Swiss biologist Jean Piaget (1896–1980) and further developed by many theorists. Another is information-processing theory.

cognitive-developmental theory the stage theory that holds that the child's abilities to mentally represent the world and solve problems unfold as a result of the interaction of experience and the maturation of neurological structures.

scheme an action pattern or mental structure that is involved in the acquisition and organization of knowledge.

adaptation the interaction between the organism and the environment, consisting of assimilation and accommodation.

assimilation the incorporation of new events or knowledge into existing schemes.

PIAGET'S COGNITIVE-DEVELOPMENTAL THEORY

Cognitive theorists investigate the ways in which children perceive and mentally represent the world, how they develop thinking, logic, and problem-solving ability. One cognitive perspective is cognitive-developmental theory, advanced by Swiss biologist Jean Piaget (1896–1980). Piaget's early training as a biologist led him to view children as mentally assimilating and accommodating aspects of their environment.

Piaget used concepts such as schemes, adaptation, assimilation, accommodation, and equilibration to describe and explain cognitive development. In 1963, Piaget hypothesized that children's cognitive processes develop in an orderly sequence, or series, of stages. He identified four major stages of cognitive development: sensorimotor, preoperational, concrete operational, and formal operational.

COGNITIVE-DEVELOPMENTAL THEORY

During his adolescence, Jean Piaget studied philosophy, logic, and mathematics, but years later he took his Ph.D. in biology. In 1920, he obtained a job at the Binet Institute in Paris, where research on intelligence tests was being conducted. Through his studies, Piaget realized that when children answered questions incorrectly, their wrong answers still often reflected consistent—although illogical—mental processes. Piaget regarded children as natural physicists who actively intend to learn about and take intellectual charge of their worlds. In the Piagetian view, children who squish their food and laugh enthusiastically are often acting as budding scientists. They are studying both the texture and consistency of their food, as well as their parents' response.

Piaget used concepts such as *schemes*, *adaptation*, *assimilation*, *accommodation*, and *equilibration* to describe and explain cognitive development. Piaget defines the **scheme** as a pattern of action or mental structure that is involved in acquiring or organizing knowledge. For example, newborn babies might be said to have a sucking scheme (others call this a *reflex*), responding to things put in their mouths as "things I can suck" versus "things I can't suck."

Adaptation refers to the interaction between the organism and the environment. According to Piaget, all organisms adapt to their environment. Adaptation consists of assimilation and accommodation, which occur throughout life. Cognitive **assimilation** refers to the process by which someone responds to new objects or events according to existing schemes or ways of organizing knowledge. Two-year-olds who refer to horses as

Copyright 2018 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-203

"doggies" are assimilating horses into their dog scheme. Sometimes a novel object or event cannot be made to fit into an existing scheme. In that case, the scheme may be changed or a new scheme may be created to incorporate the new event. This process is called **accommodation**. Consider the sucking reflex. Infants accommodate by rejecting objects that are too large, that taste bad, or that are of the wrong texture or temperature.

Piaget theorized that when children can assimilate new events into existing schemes, they are in a state of cognitive harmony, or equilibrium. When something that does not fit happens, their state of equilibrium is disturbed and they may try to accommodate. The process of restoring equilibrium is termed **equilibration**. Piaget believed that the attempt to restore equilibrium lies at the heart of the natural curiosity of the child.

PIAGET'S STAGES OF COGNITIVE DEVELOPMENT

Piaget (1963) hypothesized that children's cognitive processes develop in an orderly sequence, or series, of stages. Piaget identified four major stages of cognitive development: *sensorimotor*, *preoperational*, *concrete operational*, and *formal operational*. These stages are discussed in subsequent chapters.

Because Piaget's theory focuses on cognitive development, its applications are primarily in educational settings. Teachers following Piaget's views actively engage the child in solving problems. They gear instruction to the child's developmental level and offer activities that challenge the child to advance to the next level. For example, five-year-old children learn primarily through play and direct sensory contact with the environment. Early formal instruction using paper and workbooks may be less effective with this age group.

Evaluation Many researchers, using a variety of methods, find that Piaget may have underestimated the ages when children are capable of doing certain things. It also appears that many cognitive skills may develop gradually and not in distinct stages. Nevertheless, Piaget has provided a strong theoretical foundation for researchers concerned with sequences in cognitive development.

INFORMATION-PROCESSING THEORY Another face of the cognitive perspective is information processing (Brigham et al., 2011; Calvete & Orue, 2012). Many psychologists and educators speak of people as having working or short-term memory and a more permanent long-term memory (storage). If information has been placed in long-term memory, it must be retrieved before we can work on it. Retrieving information from our own long-term memories requires certain cues, without which the information may be lost.

Thus, many cognitive psychologists focus on information processing in people—the processes by which people encode (input) information, store it (in long-term memory), retrieve it (place it in short-term memory), and manipulate it to solve problems. Our strategies for solving problems are sometimes referred to as our *mental programs* or *software*. In this computer metaphor, our brains are the *hardware* that runs our mental programs. Our brains—containing billions of brain cells called *neurons*—become our most "personal" computers. When psychologists who study information processing contemplate cognitive development, they are likely to talk in terms of the *size* of the person's short-term memory and the *number of programs* she or he can run simultaneously.

The most obvious applications of information processing occur in teaching. For example, information-processing models alert teachers to the sequence of steps by which children acquire information, commit it to memory, and retrieve it to solve problems. By understanding this sequence, teachers can provide experiences that give students practice with each stage.

We now see that the brain is a sort of biological computer. Let us next see what other aspects of biology can be connected with development.

1-2d THE BIOLOGICAL PERSPECTIVE

The biological perspective directly relates to physical development: to gains in height and weight; development of the brain; and developments connected with hormones, reproduction, and heredity. Here we consider two biologically oriented theories of development, evolutionary psychology and ethology.

EVOLUTIONARY PSYCHOLOGY AND ETHOLOGY: "DOING WHAT COMES NATURALLY" Evolutionary psychology and ethology were heavily influenced by the 19th-century work of Charles Darwin and by the work of 20th-century ethologists Konrad Lorenz and Niko Tinbergen. **Ethology** is concerned with instinctive, or inborn, behavior patterns. According to the theory of evolution, there is a struggle for survival as various species and individuals compete for a limited quantity of resources. The combined genetic instructions from parents lead to variations among individuals. There are also sharper differences from parents,

accommodation the modification of existing schemes to permit the incorporation of new events or knowledge.

equilibration the creation of an equilibrium, or balance, between assimilation and accommodation.

ethology the study of behaviors that are specific to a species.

Copyright 2018 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-203

caused by sudden changes in genetic material called *mutations*. Those individuals whose traits are better adapted to their environments are more likely to survive (that is, to be naturally selected). Survival permits them to reach sexual maturity, select mates, and reproduce, thereby transmitting their features or traits to the next generation. What began as a minor variation or a mutation becomes embedded in more and more individuals over the generations—if it fosters survival.

The field of **evolutionary psychology** studies the ways in which adaptation and natural selection are connected with mental processes and behavior. One of the concepts of evolutionary psychology is that not only physical traits but also patterns of behavior, including social behavior, evolve and are transmitted genetically from generation to generation. In other words, behavior patterns that help an organism to survive and reproduce are likely to be transmitted to the next generation. Such behaviors are believed to include aggression, strategies of mate selection, even altruism—that is, self-sacrifice of the individual to help perpetuate the family group. The behavior patterns are termed *instinctive* or *species-specific* because they evolved within certain *species*.

evolutionary psychology the branch of psychology that deals with the ways in which humans' historical adaptations to the environment influence behavior and mental processes, with special focus on aggressive behavior and mating strategies.

fixed action pattern (FAP) a stereotyped pattern of behavior that is evoked by a "releasing stimulus"; an instinct.

ecology the branch of biology that deals with the relationships between living organisms and their environment.

ecological systems theory the view that explains child development in terms of the reciprocal influences between children and environmental settings.

microsystem the immediate settings with which the child interacts, such as the home, the school, and peers.

mesosystem the interlocking settings that influence the child, such as the interaction of the school and the larger community.

The nervous systems of most, and perhaps all, animals are "prewired" to respond to some situations in specific ways. For example, birds raised in isolation from other birds build nests during the mating season even if they have never seen a nest or seen another bird building one. Nest-building could not have been learned. Birds raised in isolation also sing the songs typical of their species. These behaviors are *built in*, or instinctive. They are also referred to as inborn **fixed action patterns (FAPs)**.

During prenatal development, genes and sex hormones are responsible for the physical development of female and male sex organs. Most theorists also believe that in many species, including humans, sex hormones can "masculinize" or "feminize" the embryonic brain by creating tendencies to behave in stereotypical masculine or feminine ways. Testosterone, the male sex hormone, seems to be connected with feelings of self-confidence, high activity levels, and—the negative side—aggressiveness (Hines, 2011; Nguyen et al., 2016; Rice & Sher, 2013).

Research into the ethological perspective suggests that instinct may play a role in human behavior. Two questions that ethological research seeks to answer are: What areas of human behavior and development, if any, involve instincts? How powerful are instincts in people?

1-2e THE ECOLOGICAL PERSPECTIVE

Ecology is the branch of biology that deals with the relationships between living organisms and their environment. The **ecological systems theory** of development addresses aspects of psychological, social, and emotional development as well as aspects of biological development. Ecological systems theorists explain development in terms of the interaction between people and the settings in which they live (Bronfenbrenner & Morris, 2006).

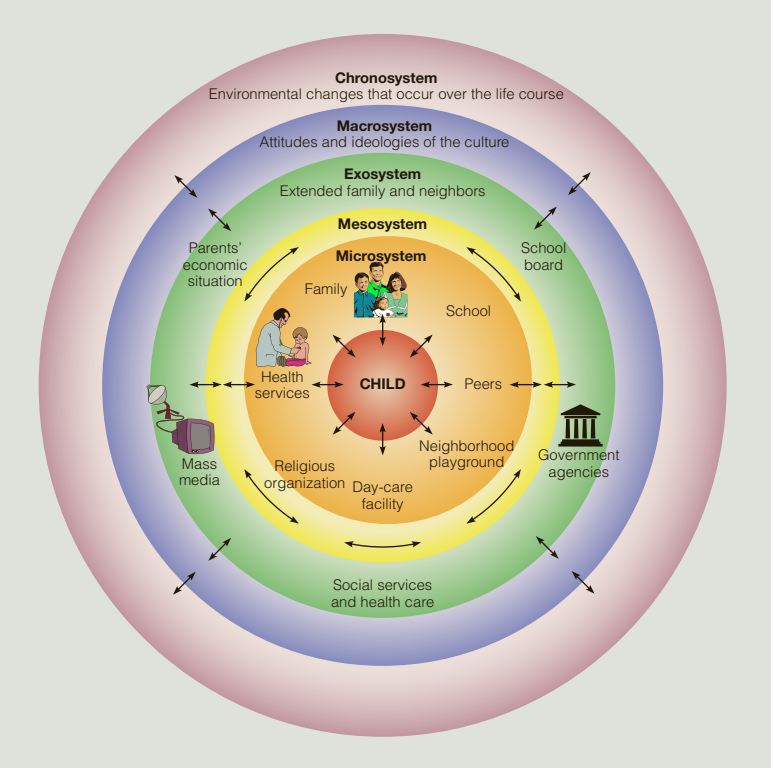
According to Urie Bronfenbrenner (1917–2005), for example, we need to focus on the two-way interactions between the child and the parents, not just maturational forces (nature) or child-rearing practices (nurture). Bronfenbrenner suggested that we can view the setting or contexts of human development as consisting of multiple systems, each embedded within the next larger context (Bronfenbrenner & Morris, 2006). From narrowest to widest, these systems are the microsystem, the mesosystem, the exosystem, the macrosystem, and the chronosystem (Figure 1.4).

The **microsystem** involves the interactions of the child and other people in the immediate setting, such as the home, the school, or the peer group. Initially, the microsystem is small, involving care-giving interactions with the parents or others, usually at home. As children get older, they do more, with more people, in more places.

The **mesosystem** involves the interactions of the various settings within the microsystem. For instance, the home and the school interact during parent–teacher conferences. The school and the larger community interact when children are taken on field trips. The ecological systems approach addresses the joint effect of two or more settings on the child.

Copyright 2018 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-203

FIG.1.4 THE CONTEXTS OF HUMAN DEVELOPMENT



Psychologists and educators explain social and environmental influences on development in various ways. Urie Bronfenbrenner spoke of the importance of *ecological systems*, which affect development in various ways. The child's family, peers, and day-care facility, for example, are part of the child's microsystem and exert enormous influence. But the elements in the microsystem interact with other systems to influence the child. The parents' economic situation, for example, which is considered part of the child's exosystem, makes certain things possible for the child and rules out others.

The **exosystem** involves the institutions in which the child does not directly participate but which exert an indirect influence on the child. For example, the school board is part of the child's exosystem because board members put together programs for the child's education, determine what textbooks will be acceptable, and so forth. In similar fashion, the parents' workplaces and economic situations determine the hours during which they will be available to the child, and so on (Hong & Eamon, 2012; Tisdale & Pitt-Catsuphes, 2012). When some parents are unavailable, children may be more likely to misbehave at home or in school.

The **macrosystem** involves the interaction of children with the beliefs, values, expectations, and lifestyles of their cultural settings. Cross-cultural studies examine children's interactions with their macrosystem. Macrosystems exist within a particular culture. In the United States, the dual-earner family, the low-income single-parent household, and the family with father as sole breadwinner describe three different macrosystems. Each has its lifestyle, set of values, and expectations (Bronfenbrenner & Morris, 2006; Lustig, 2011).

The **chronosystem** considers the changes that occur over time. For example, the effects of divorce peak about a year after the event, and then children begin to recover. The breakup has more of an effect on boys than on girls. The ecological approach broadens the strategies for intervention in problems such as prevention of teenage pregnancy, child abuse, and juvenile offending, including substance use disorders (Kaminski & Stormshak, 2007; Latkin et al., 2013).

1-2f THE SOCIOCULTURAL PERSPECTIVE

The sociocultural perspective teaches that people are social beings who are affected by the cultures in which they live. Developmentalists use the term *sociocultural* in a couple of different ways. One refers quite specifically to the *sociocultural theory* of Russian psychologist Lev Semenovich Vygotsky (1896–1934). The other addresses the effect of human diversity on people, including such factors as ethnicity and gender.

VYGOTSKY'S SOCIOCULTURAL THEORY

Whereas genetics is concerned with the biological transmission of traits from generation to generation, Vygotsky's (1978) theory is concerned with the transmission of information and cognitive skills from generation to generation. The transmission of skills involves teaching and learning, but Vygotsky does not view learning in terms of conditioning. Rather, he focuses on how the child's social interaction with adults, largely in the home, organizes a child's learning experiences in such a way that the child can obtain cognitive skills—such as computation or reading skills—and use them to acquire information. Like Piaget, Vygotsky sees the child's functioning as adaptive, and the child adapts to his or her social and cultural interactions.

exosystem community institutions and settings that indirectly influence the child, such as the school board and the parents' workplaces.

macrosystem the basic institutions and ideologies that influence the child.

chronosystem the environmental changes that occur over time and have an effect on the child.

Copyright 2018 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-203

VYGOTSKY'S SOCIOCULTURAL THEORY

Lev Semenovich Vygotsky (1896–1934) was mainly concerned with the transmission of information from one generation to another. He explained the social influences on children's development of knowledge and skills in terms of their zone of proximal development and scaffolding.

The zone of proximal development (ZPD) refers to a range of tasks that a child can carry out with the help of someone who is more skilled, as in an apprenticeship. A scaffold is a temporary skeletal structure that enables workers to fabricate a building or other more permanent structure. In Vygotsky's theory, teachers and parents provide children with problem-solving methods that serve as cognitive scaffolding while the child gains the ability to function independently.

Key concepts in Vygotsky's theory include the *zone of proximal development* and *scaffolding*. The **zone of proximal development (ZPD)** refers to a range of tasks that a child can carry out with the help of someone who is more skilled, as in an apprenticeship. When learning with other people, children internalize—or bring inward—the conversations and explanations that help them gain the necessary skills (Vygotsky, 1962; Poehner, 2012; Thompson et al., 2016).

A *scaffold* is a temporary skeletal structure that enables workers to fabricate a building or other more permanent structure. In Vygotsky's theory, teachers and parents provide children with problem-solving methods that serve as cognitive **scaffolding** while the child gains the ability to function independently. For example, children may be offered scaffolding that enables them to use their fingers or their toes to do simple calculations. Eventually, the scaffolding is removed and the cognitive structures stand alone.

Brand X Pictures /Jupiter Images; Len Rubenstein/Photolibrary/Getty Images

According to Vygotsky's theory, teachers and parents provide children with problem-solving methods that serve as cognitive scaffolding.

zone of proximal development (ZPD) Vygotsky's term for the situation in which a child carries out tasks with the help of someone who is more skilled.

scaffolding Vygotsky's term for temporary cognitive structures or methods of solving problems that help the child as he or she learns to function independently.

1-2g HUMAN DIVERSITY

The sociocultural perspective asserts that we cannot understand individuals without awareness of the richness of their diversity (Markus, 2016; Russo et al., 2012). For example, people differ in their ethnicity (cultural heritage, race, language, and common history), their gender, and their socioeconomic status. Population shifts are under way in the United States as a result of reproductive patterns and immigration. The numbers of African Americans and Latin Americans (who may be White, Black, or Native American in racial origin) are growing more rapidly than those of European Americans (United States Census Bureau. (2015). QuickFacts, United States. http://www.census.gov/quickfacts/table/PST045215/00). The cultural heritages, languages, and histories of ethnic minority groups are thus likely to have an increasing effect on the cultural life of the United States, yet it turns out that the dominant culture in the United States has often disparaged the traditions and languages of people from ethnic minority groups. For example, it has been considered harmful to rear children bilingually, although research suggests that bilingualism broadens children's knowledge of the various peoples of the world.

Studying diversity is also important so that students have appropriate educational experiences. To teach students and guide their learning, educators need to understand children's family values and cultural expectations. Issues that affect people from various ethnic groups include bilingualism, ethnic differences in intelligence test scores, the prevalence of suicide among members of different backgrounds, and patterns of child rearing among parents of various groups.

Copyright 2018 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-203

Contemporary psychologists and educators recognize that we cannot understand the development of individuals without reference to their diversity—for example, their cultural heritage, race, language, common history, gender, and socioeconomic status.

Derek Latta/Getty Images

Gender is another aspect of human diversity. Gender is the psychological state of being male or being female, as influenced by cultural concepts of gender-appropriate behavior. Expectations of females and males are often polarized by cultural expectations. Males may differ from females in some respects, but history has created more burdens for women than men as a result. Historically, females have been discouraged from careers in the sciences, politics, and business. Recent research, however, shows that females are as capable as males of performing in so-called STEM fields (science, technology, engineering, and math) (e.g., Brown & Lent, 2016). Women today are making inroads into academic and vocational spheres—such as medicine, law, engineering, and the military—that were traditionally male preserves. Today, most college students in the United States are female, but there remain many parts of the world in which women are prevented from obtaining an education (Yousafazi & Lamb, 2013).

Table 1.1 summarizes the theoretical perspectives on development.

1-3 CONTROVERSIES IN DEVELOPMENT

The discussion of theories of development reveals that developmentalists can see things in very different ways. Let us consider how they react to three of the most important debates in the field.

1-3a THE NATURE–NURTURE CONTROVERSY

Researchers are continually trying to sort out the extent to which human behavior is the result of **nature** (heredity) and of **nurture** (environmental influences). What aspects of behavior originate in our genes and are biologically programmed to unfold as time goes on, as long as minimal nutrition and social experience are provided? What aspects of behavior can be traced largely to such environmental influences as nutrition and learning?

Scientists seek the natural causes of development in children's genetic heritage, the functioning of the nervous system, and in maturation. Scientists seek the environmental causes of development in children's nutrition, cultural and family backgrounds, and opportunities to learn about the world, including cognitive stimulation during early childhood and formal education.

Some theorists (e.g., cognitive-developmental and biological theorists) lean heavily toward natural explanations of development, whereas others (e.g., learning theorists) lean more heavily toward environmental explanations. Today, though, nearly all researchers agree that nature and nurture play important roles in nearly every area of development. Consider the development of language. Language is based in structures found in certain areas of the brain. Thus, biology (nature) plays a vital role. Children also come to speak the languages spoken by their caretakers. Parent–child similarities in accent and vocabulary provide additional evidence for the role of learning (nurture) in language development.

1-3b THE CONTINUITY–DISCONTINUITY CONTROVERSY

Some developmentalists view human development as a continuous process in which the effects of learning mount gradually, with no major sudden qualitative changes. In contrast, other theorists believe that a number of rapid qualitative changes usher in new stages of development. Maturational theorists point out that the environment, even when enriched, profits us little until we are ready, or mature enough, to develop in a certain way. For example, newborn babies will not imitate their parents' speech, even when parents speak clearly and deliberately. Nor does aided practice in walking during the first few months after birth significantly accelerate the emergence of independent walking. The babies are not ready to do these things.

nature the processes within an organism that guide it to develop according to its genetic code.

nurture environmental factors that influence development.

Copyright 2018 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-203

TABLE 1.1 CHILD DEVELOPMENT PERSPECTIVES AND THEORIES

Perspective	Theory	Core Concepts	Is Nature or Nurture More Important?
The Psychoanalytic Perspective	**Theory of psychosexual development** (Sigmund Freud)	Social codes channel primitive impulses, resulting in unconscious conflict.	Interaction of nature and nurture: Maturation sets the stage for reacting to social influences.
	Theory of psychosocial development (Erik Erikson)	People undergo life crises that are largely based on social relationships, opportunities, and expectations.	Interaction of nature and nurture: Maturation sets the stage for reacting to social influences and opportunities.
The Learning Perspective: Behavioral and Social Cognitive Theories	**Behaviorism** (John B. Watson, Ivan Pavlov, B. F. Skinner)	Behavior is learned by association, as in classical and operant conditioning.	Nurture: Children are seen almost as blank tablets.
	Social cognitive theory (Albert Bandura and others)	Conditioning occurs, but people also learn by observing others and choose whether to display learned responses.	Emphasizes nurture but allows for the expression of natural tendencies.
The Cognitive Perspective	**Cognitive-developmental theory** (Jean Piaget)	Children adapt to the environment via assimilation to existing mental structures by accommodating to these structures.	Emphasizes nature but allows for influences of experience.
	Information-processing theory	Human cognitive functioning is compared to that of computers—how they input, manipulate, store, and output information.	Interaction of nature and nurture.
The Biological Perspective	**Ethology and evolution** (Charles Darwin, Konrad Lorenz, Niko Tinbergen)	Organisms are biologically "prewired" to develop certain adaptive responses during sensitive periods.	Emphasizes nature but experience is also critical; e.g., imprinting occurs during a sensitive period but experience determines the object of imprinting.
The Ecological Perspective	**Ecological systems theory** (Urie Bronfenbrenner)	Children's development occurs within interlocking systems, and development is enhanced by intervening in these systems.	Interaction of nature and nurture: Children's personalities and skills contribute to their development.
The Sociocultural Perspective	**Sociocultural theory** (Lev Vygotsky)	Children internalize sociocultural dialogues in developing problem-solving skills.	Interaction of nature and nurture: Nurture is discussed in social and cultural terms.
	Sociocultural perspective and human diversity	Development is influenced by factors such as cultural heritage, race, language, common history, gender, and socioeconomic status.	Nurture.

Stage theorists such as Sigmund Freud and Jean Piaget saw development as discontinuous. They saw biological changes as providing the potential for psychological changes. Freud focused on the ways in which biological developments might provide the basis for personality development. Piaget believed maturation of the nervous system allowed cognitive development.

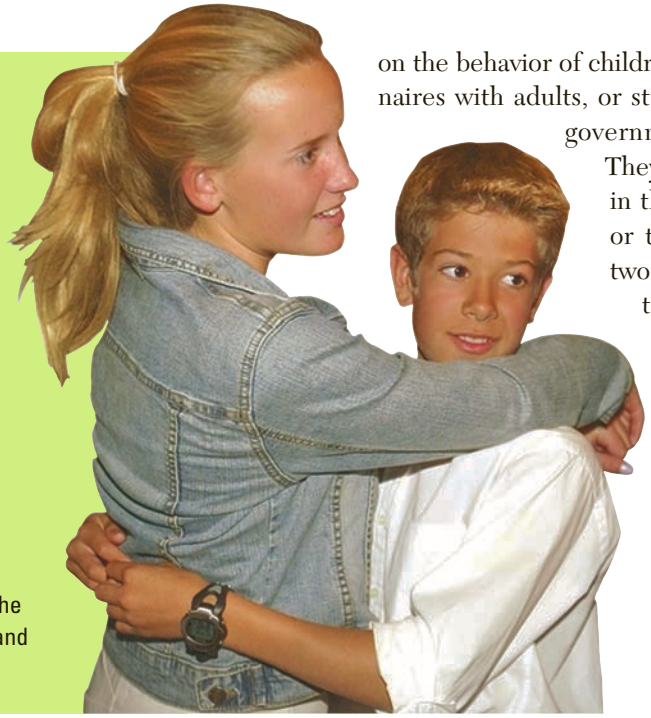
Certain aspects of physical development do occur in stages. For example, from the age of two years to the onset of puberty, children gradually grow larger. Then the adolescent growth spurt occurs as rushes of hormones cause rapid biological changes in structure and function (as in the development of the sex organs) and in size. Psychologists disagree on whether developments in cognition occur in stages.

1-3c THE ACTIVE–PASSIVE CONTROVERSY

Historical views of children as willful and unruly suggest that people have generally seen children as active, even if mischievous (at best) or evil (at worst). John Locke introduced a view of children as passive beings (blank tablets); experience "wrote" features of personality and moral virtue on them.

At one extreme, educators who view children as passive may assume that they must be motivated to learn by their instructors. Such educators are likely to provide a rigorous traditional curriculum with a powerful system of rewards and punishments to promote absorption of the subject matter. At the other extreme, educators who view children as active may assume that they have a natural

Copyright 2018 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-203



Here we have a clear example of the importance of maturation in development. Adolescents undergo a growth spurt that disrupts a pattern of gradual gains in height and weight that persisted throughout most of childhood. Girls, interestingly, spurt earlier than boys. The girl and boy shown here are actually the same age, even though the girl towers over the boy. But her height advantage is temporary; when he spurts, he will quickly catch up to her and surpass her in height.

Mark Richard/PhotoEdit

love of learning. Such educators are likely to argue for open education and encourage children to explore and pursue their unique likes and talents.

These debates are theoretical. Scientists value theory for its ability to tie together observations and suggest new areas of investigation, but scientists also follow an **empirical** approach. That is, they engage in research methods, such as those described in the next section, to find evidence for or against various theoretical positions.

1-4 HOW DO WE STUDY DEVELOPMENT?

What is the relationship between intelligence and achievement? What are the effects of maternal use of aspirin and alcohol on the fetus? What are the effects of parental divorce on children? What are the effects of early retirement? We may have expressed opinions on such questions at one time or another, but scientists insist that such questions be answered by research. Strong arguments or reference to authority figures are not evidence. Scientific evidence is obtained only by gathering sound information and conducting research.

1-4a GATHERING INFORMATION

Researchers use various methods to gather information. For example, they may ask teachers or parents to report on the behavior of children, use interviews or questionnaires with adults, or study statistics compiled by the government or the United Nations. They also directly observe children in the laboratory, the playground, or the classroom. Let us discuss two ways of gathering information: the naturalistic-observation method and the case-study method.

NATURALISTIC OBSERVATION **Naturalistic-observation** studies are conducted in the field, that is, in the natural, or real-life, settings in which they happen. In field studies, investigators observe the natural behavior of children in settings such as homes, playgrounds, and classrooms and try not to interfere with it. Researchers may try to "blend into the woodwork" by sitting quietly in the back of a classroom or by observing the class through a one-way mirror.

Naturalistic-observation studies have been done with children of different cultures. For example, researchers have observed the motor behavior of Native American Hopi children who are strapped to cradle boards during their first year. You can read more about this in Chapter 5.

THE CASE STUDY The **case study** is a carefully drawn account of the behavior of an individual. Parents who keep diaries of their children's activities are involved in informal case studies. Case studies themselves often use a number of different kinds of information. In addition to direct observation, case studies may include questionnaires, **standardized tests**, and interviews. Information gleaned from public records may be included. Scientists who use the case-study method try to record all relevant factors in a person's behavior, and they are cautious in drawing conclusions about what leads to what.

empirical based on observation and experimentation.

naturalistic-observation a scientific method in which organisms are observed in their natural environments.

case study a carefully drawn biography of the life of an individual.

standardized test a test in which an individual's score is compared to the scores of a group of similar individuals.

Copyright 2018 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-203

1-4b CORRELATION: PUTTING THINGS TOGETHER

Researchers use the correlational method to determine whether one behavior or trait being studied is related to, or correlated with, another. Consider intelligence and achievement. These variables are assigned numbers such as intelligence test scores and grade point averages. Then the numbers or scores are mathematically related and expressed as a **correlation coefficient**—a number that varies between +1.00 and −1.00.

In general, the higher people score on intelligence tests, the better their academic performance (or income) is likely to be. The scores attained on intelligence tests are **positively correlated** (about +0.60 to +0.70) with overall academic achievement (and income). There is a **negative correlation** between adolescents' grades and delinquent acts. The higher an adolescent's grades, the less likely he or she is to engage in criminal behavior. Figure 1.5 illustrates the concepts of positive and negative correlations.

LIMITATIONS OF CORRELATIONAL INFORMATION

Correlational information can reveal relationships between variables, but it does not show cause and effect. It may seem logical to assume that exposure to violent media makes people more aggressive, but it may also be that more aggressive people *choose* violent media. This research bias is termed a *selection factor*.

Similarly, studies report that children (especially boys) in divorced families tend to show more behavioral problems than children in intact families (Daryanani et al., 2016; Vélez et al., 2011). These studies, however, do not show that divorce causes these adjustment problems. It could be that the factors that led to divorce—such as parental conflict—also led to adjustment problems among the children (Hetherington, 2006). To investigate cause and effect, researchers turn to the experimental method.

1-4c THE EXPERIMENT: TRYING THINGS OUT

The experiment is the preferred method for investigating questions of cause and effect. In the **experiment**, a group of research participants receives a treatment and another group does not. The subjects are then observed to determine whether the treatment changes their behavior. Experiments are usually undertaken to test a **hypothesis**. For example, a researcher might hypothesize that TV violence will cause aggressive behavior in children.

INDEPENDENT AND DEPENDENT VARIABLES

In an experiment to determine whether TV violence causes aggressive behavior, subjects in the experimental group would be shown a TV program containing violence, and its effects on behavior would be measured.

correlation coefficient a number ranging from +1.00 to −1.00 that expresses the direction (positive or negative) and strength of the relationship between two variables.

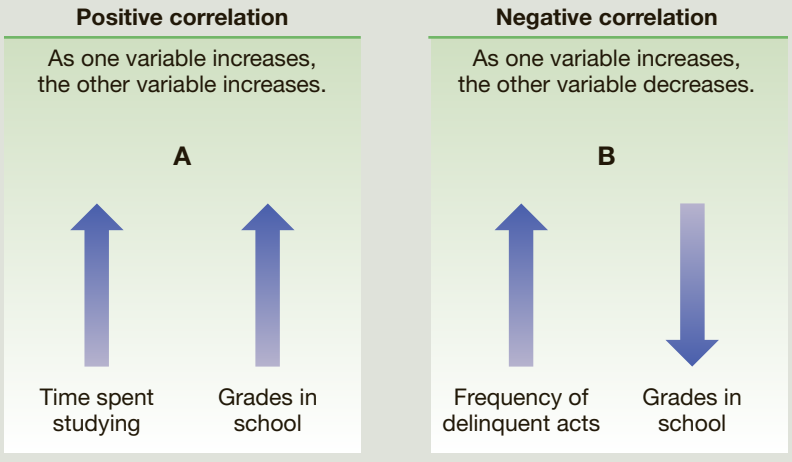
positive correlation a relationship between two variables in which one variable increases as the other increases.

negative correlation a relationship between two variables in which one variable increases as the other decreases.

experiment a method of scientific investigation that seeks to discover cause-and-effect relationships by introducing independent variables and observing their effects on dependent variables.

hypothesis a proposition to be tested.

FIG.1.5 EXAMPLES OF POSITIVE AND NEGATIVE CORRELATIONS



When two variables are correlated positively, one increases as the other increases. Part A shows that there is a positive correlation between the amount of time studying and one's grades in school. In contrast, when two variables are correlated negatively, one decreases as the other one increases. As in Part B, a teenager's school grades are likely to decrease as he engages in more delinquent acts. But correlation does not show cause and effect. Do the teenager's grades fall off because of his engaging in more delinquent behavior? Do falling grades lead to more delinquency? Or could another factor explain *both* falling grades and increased delinquency?

Copyright 2018 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-203

TV violence would be considered an **independent variable**, a variable whose presence is manipulated by the experimenters so that its effects can be determined. The measured result—in this case, the child's behavior—is called a **dependent variable**. Its presence or level presumably depends on the independent variable.

EXPERIMENTAL AND CONTROL GROUPS Experiments use experimental and control groups. Subjects in the **experimental group** receive the treatment, whereas subjects in the **control group** do not. All other conditions are held constant for both groups. Thus, we can have confidence that experimental outcomes reflect the treatments and not chance factors.

RANDOM ASSIGNMENT Subjects should be assigned to experimental or control groups on a chance or random basis. We could not conclude much from an experiment on the effects of TV violence if the children were allowed to choose whether they would be in a group that watched TV violence or in a group that did not. A *selection factor* rather than the treatment might then be responsible for the results of the experiment.

Ethical and practical considerations also prevent researchers from doing experiments on the effects of many life circumstances, such as divorce or different patterns of child rearing. We cannot randomly assign some families to divorce or conflict and assign other families to "bliss." Nor can we randomly assign parents to rearing their children in an authoritarian or permissive manner. In some areas of investigation, we must settle for correlational evidence.

When experiments cannot ethically be performed on humans, researchers sometimes carry them out with animals and try to generalize the findings to humans.

TRUTH

T F Research with monkeys has helped psychologists understand the formation of attachment in humans.

It is true that research with monkeys has helped psychologists understand the formation of attachment in humans. Researchers have exposed monkeys and other nonhuman animals to conditions that it would be unethical to use with humans.

No researcher would separate human infants from their parents to study the effects of isolation on development, yet experimenters have deprived monkeys of early social experience. Such research has helped psychologists investigate the formation of parent–child bonds of attachment.

1-4d LONGITUDINAL RESEARCH: STUDYING DEVELOPMENT OVER TIME

The processes of development occur over time, and researchers have devised different strategies for comparing children of one age with children or adults of other ages. In **longitudinal research**, the same people are observed repeatedly over time, and changes in development, such as gains in height or changes in mental abilities, are recorded. In **cross-sectional research**, children of different ages are observed and compared. It is assumed that when a large number of children are chosen at random, the differences found in the older age groups are a reflection of how the younger children will develop, given time.

LONGITUDINAL STUDIES The Terman Studies of Genius, begun in the 1920s, tracked children with high IQ scores for more than 50 years. Male subjects, but not female subjects, went on to high achievements in the professional world. Why? Contemporary studies of women show that women with high intelligence generally match the achievements of men and suggest that women of the earlier era were held back by traditional gender-role expectations.

Most longitudinal studies span months or a few years, not decades. For example, briefer longitudinal studies have found that the children of divorced parents undergo the most severe adjustment problems within a few months of the divorce, peaking at about a year. By two or three years afterward, many children regain their equilibrium,

independent variable a condition in a scientific study that is manipulated so that its effects can be observed.

dependent variable a measure of an assumed effect of an independent variable.

experimental group a group made up of subjects who receive a treatment in an experiment.

control group a group made up of subjects in an experiment who do not receive the treatment but for whom all other conditions are comparable to those of subjects in the experimental group.

longitudinal research the study of developmental processes by taking repeated measures of the same group of participants at various stages of development.

cross-sectional research the study of developmental processes by taking measures of participants of different age groups at the same time.

Copyright 2018 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-203

as indicated by improved academic performance and social behavior (Hetherington, 2006; Moon, 2011).

Longitudinal studies have drawbacks. For example, it can be difficult to enlist volunteers to participate in a study that will last a lifetime. Many subjects fall out of touch as the years pass; others die. The researchers must be patient or arrange to enlist future generations of researchers.

TRUTH

T F To learn how a person develops over a lifetime, researchers have tracked some individuals for more than 50 years.

It is true that researchers have tracked some individuals for more than 50 years to learn how a person develops over a lifetime. The Terman study did just that. What are the advantages and disadvantages of longitudinal research as compared with cross-sectional research?

CROSS-SECTIONAL STUDIES Because of the drawbacks of longitudinal studies, most research that compares children of different ages is cross-sectional. In other words, most investigators gather data on what the "typical" six-month-old is doing by finding children who are six months old today. When they expand their research to the behavior of typical 12-month-olds, they seek another group of children, and so on.

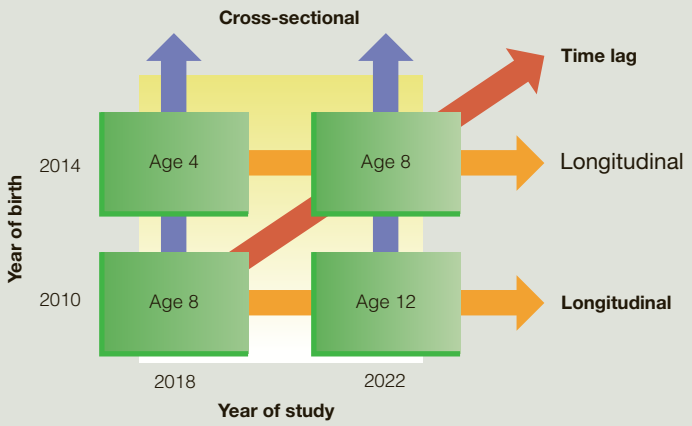
A major challenge to cross-sectional research is the **cohort effect**. A cohort is a group of people born at about the same time. As a result, they experience cultural and other events unique to their age group. In other words, children and adults of different ages are not likely to have shared similar cultural backgrounds. People who are 80 years old today, for example, grew up without TV. Today's children are growing up taking iPods and the Internet for granted.

Children of past generations also grew up with different expectations about gender roles and appropriate social behavior. Women in the Terman study generally chose motherhood over careers because of the times. Today's girls are growing up with female role models who are astronauts and government officials.

In longitudinal studies, we know that we have the same individuals as they have developed over 5, 25, even 50 years or more. In cross-sectional research, we can only hope that they will be comparable.

CROSS-SEQUENTIAL RESEARCH **Cross-sequential research** combines the longitudinal and cross-sectional methods so that many of their individual drawbacks are overcome. In the cross-sequential study, the full span of the ideal longitudinal study is broken up into convenient segments (see Figure 1.6). Assume that we wish to follow the attitudes of children toward gender roles from the age of 4 through the age of 12. The typical longitudinal study would take eight years. We can, however, divide this eight-year span in half by attaining two samples of children (a cross-section) instead of one: four-year-olds and eight-year-olds. We would then interview, test, and observe each group at the beginning of the study (2018) and four years later (2022).

FIG.1.6 EXAMPLES OF CROSS-SEQUENTIAL RESEARCH



Cross-sequential research combines three methods: cross-sectional, longitudinal, and time lag. The child's age at the time of testing appears in the boxes. Vertical columns represent cross-sectional comparisons. Horizontal rows represent longitudinal comparisons. Diagonals represent time-lag comparisons.

cohort effect similarities in behavior among a group of peers that stem from the fact that group members were born at the same time in history.

cross-sequential research an approach that combines the longitudinal and cross-sectional methods by following individuals of different ages for abbreviated periods of time.

Copyright 2018 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-203