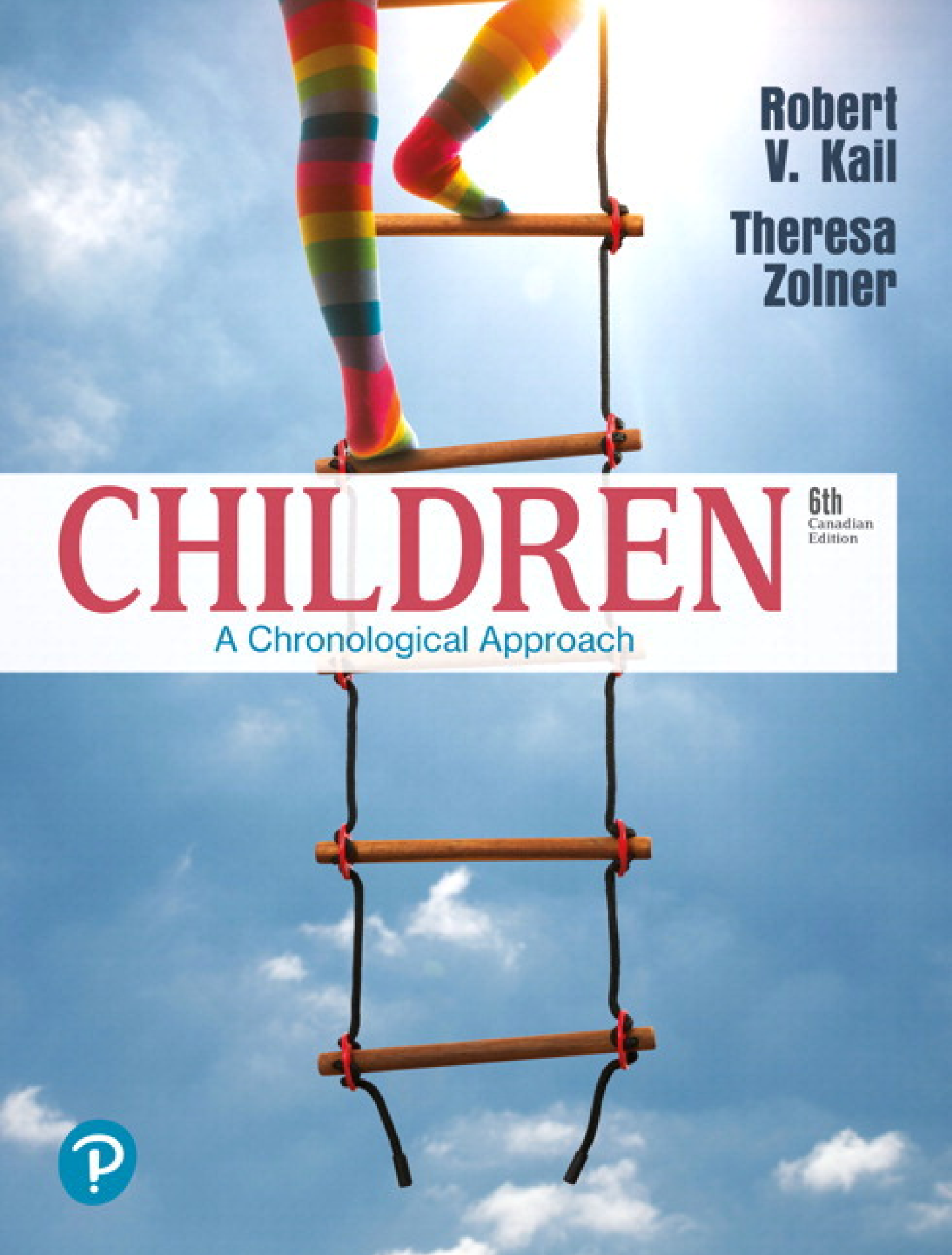

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CHILDREN

6th Canadian Edition

A Chronological Approach

Children

A Chronological Approach

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About This Course

To the Student

This text is designed to introduce you to the world of the developing child from initial gestation through adolescence. This is a broad period of development that sees periods of rapid and slower change across many domains. This text is a science-based approach to understanding developmental change in children and adolescents from a chronological perspective. The text covers three main areas—physical, cognitive, and psychosocial change—in infancy, preschool, school age, and adolescent periods. In addition, the text includes information about development prior to birth as well as a basic introduction to theory and research in the field of developmental psychology. I hope you enjoy studying child and adolescent development!

To the Instructor

I am pleased to present to you the sixth Canadian edition of *Children: A Chronological Approach*, written for those engaged in introductory learning and teaching of child and adolescent development from a psychological perspective. This edition of the text has been extensively revised and updated to include some of the most recent research in the field. In addition, a new feature has been added to the text to highlight special topics in child and youth development within an Indigenous context. The authentic Canadian context of the book, as well as the chronological unfolding of developmental events, will help your students to grasp child and adolescent development concepts in a way that is culturally meaningful and conceptually accessible to them.

I sincerely hope that you enjoy this new edition of *Children: A Chronological Approach.* The book retains and updates useful features from the previous edition and introduces several new ones, designed to enhance the learning experience. As an instructor, I have found these added features to be helpful to students in learning ways to improve their course performance.

Acknowledgments

First of all, I would like to thank my family and friends for the love, kindness, and support they provide to me, without which this book would not be possible. I extend special thanks and appreciation to Christie Ladouceur for contributing special topics features on child and youth development in an Indigenous context. I also would like to acknowledge and thank all the editorial, technical, and administrative personnel who worked to make this sixth Canadian edition a worthy and beautiful educational resource in the field of child and adolescent development. Generating a new edition of a text is a challenging task, and having a supportive editorial and production team makes all the difference. I also would like to thank those people who gave of their valuable time to review the text and offer their thoughts and suggestions for its improvement. Finally, a word of gratitude for all of our supplement authors, whose work helps to support learning in interesting and creative ways. In addition, I would like to thank the artists and technicians for their outstanding work in creating the interactive component for our REVEL edition, which helps to support student learning in ways that go beyond what a printed text can provide.

To those associated with this text, may good things ever be yours.

Dr. Theresa Zolner, R. Psych.

Content Highlights

How to Use This Book

As you begin to study child development, you should become familiar with the basic terms we use to describe infancy, childhood, and adolescence. Note that each term provided below refers to a specific range of ages.

- newborn: birth to 1 month
- infant: 1 month to 1 year
- toddler: 1 to 2 years
- preschooler: 2 to 6 years
- middle childhood: 6 to 12 years
- adolescent: 12 to 18 years
- adult: 18 years and older

For variety, we sometimes use other terms—*babies, youngsters, youth*, and *elementary school children*—that are less frequently tied to specific age ranges. When we do use these other terms, you will be able to tell from the chapter content which group of people is being discussed.

I also use very specific terminology to describe research findings from different cultural and ethnic groups. The appropriate terms to describe different cultural, racial, and ethnic groups tend to change over time and to vary from country to country. For example, the terms Indian, Aboriginal, Indigenous, North American Indian, and First Nations all have been used to describe the First Peoples of Canada. In this book, I use the terms First Nations, Inuit, and Métis because they are, broadly speaking, the terms used by the people from those cultural groups themselves. In addition, for this text, the term "Indigenous" is used rather than "Aboriginal," although, in some places, "Aboriginal" is used if the original writers or organizations being cited have used that particular term.

Part of the problem with cultural and ethnic terminology in developmental research is that, in Canada, we do not necessarily use the same terms as our American counterparts, particularly in research studies. Canada has a very different population settlement history from the United States, although some similarities exist. For example, both countries started out populated with persons of First Nations heritage, and both countries experienced major waves of immigration from Britain. Later waves of immigration came from other parts of Western and Eastern Europe and from other countries around the world. However, Canadian and American experiences of treaties, governance, immigrant settlement, the geographical patterns of settlement, and the proportions of the various cultural groups in the nation differ greatly.

Psychological researchers in the United States tend to identify five primary groups as culturally distinct: Native Americans, Hispanic Americans, Asian Americans, European Americans, and African Americans. However, the labelling of these groups for research is not wholly satisfactory, because the labels refer more to race than to culture. For example, within the Native American group, many different cultures are represented. In Canada, we might think of Anishinabe, Lakhota, Blackfoot, Assiniboine, and others, but these groups can be broken down into still smaller cultural groups. Cree, for example, includes Swampy Cree, Plains Cree, and Moose Cree. Each group tends to come from a different geographical area, and each speaks its own dialect of Cree. The same is true for all other racial groups—they can be broken down into smaller cultural groups that are quite distinct from each other.

For example, some writers use the term "European American" and others use "White." Unfortunately, both terms are extremely broad and superficial. Included in the "European American" group, for example, are British, German, and Bulgarian immigrants to Canada, all of whom are radically different from each other in terms of their history, language, and culture. Of course, not all European Americans are "White" in terms of skin colour either. Therefore, broad labels for cultural groups might not be very effective and might account for why sometimes, in research, as much variability emerges within a cultural group as between cultural groups. Canadian researchers sometimes create similar problems with the terms "Anglophone" and "Francophone." Francophones are frequently identified as people who are ethnically French and who speak French, whereas Anglophones speak English but might come from any number of non-French cultures. Therefore, the culture or characteristics that are represented by "Anglophone" are often unclear, except that these people speak English and are not French. Furthermore, as many Francophones also speak English, the distinction between the groups is blurred even further.

Over the past decade, an explosion of discussion has occurred within psychology about what researchers are really measuring when they classify research participants by race (Ota Wang & Sue, 2005; Shields et al., 2005; Sternberg, Grigorenko, & Kidd, 2005). Arguments abound about what race, as a variable, measures, given that sociocultural groupings within races can be very distinct and that some cultures may contain people from more than one race. Nevertheless, race is important because people tend to classify each other naturally according to racial

groupings (Smedley & Smedley, 2005; Wing Sue et al., 2007). However, with advances in research on human neurology and the human genome, scientists have recognized that social classifications by race are not always supported by genetic markers, which makes race a social construct (Cooper, 2005; Eberhardt, 2005; Ota Wang & Sue, 2005; Smedley & Smedley, 2005) with a complicated connection to biology (Hartigan, 2008).

Also, some researchers have objected to the use of "race" as a substitute, or "proxy variable," for other social and environmental variables that negatively affect racial minorities, such as poverty, oppression, and racism (Ota Wang & Sue, 2005; Shields et al., 2005). On the other hand, researchers in pharmacology and medicine have demonstrated race-based differences in disease prevalence as well as physiological processing of various medications. Therefore, discussion and research should continue to determine how the concept of race might be discussed and studied within psychology (Bonham, Warshauer-Baker, & Collins, 2005; Helms, Jernigan, & Mascher, 2005; Whitfield & McClearn, 2005).

Given the recent controversy about the merits and demerits of classifying research participants by race, reporting on research in an introductory text like this one becomes difficult when so much of the research is based on racial variables and classifications. When I report on research results in this text, I am obliged to use the terms the researchers themselves have used, even if those terms might be problematic. When researchers have identified subgroups in their research sample, I use the more specific terms in describing results. When you see more general terms, such as "White" or "European," remember that conclusions might not apply equally to all subgroups within the larger group. In future, psychological researchers will need to rise to the challenge of defining and measuring human social categories more meaningfully and accurately.

About the Authors

Robert V. Kail is Distinguished Professor Emeritus of Psychological Sciences at Purdue University. His undergraduate degree is from Ohio Wesleyan University, and his Ph.D. is from the University of Michigan. Kail is editor of the *Journal of Experimental Child Psychology* and of *Advances in Child Development and Behavior*. He received the McCandless Young Scientist Award from the American Psychological Association, was named the Distinguished Sesquicentennial Alumnus in Psychology by Ohio Wesleyan University, and is a fellow of the Association for Psychological Science. His research focuses on cognitive development during childhood and adolescence. Away from the office, he enjoys photography and working out.

Theresa Zolner is a clinical psychologist and researcher with primary interests in clinical, developmental, and cultural psychology. Dr. Zolner has retained a life-long interest in working with people who have been affected by discrimination, oppression, or objectification in various forms. In particular, she has dedicated much of her professional career to working with persons of First Nations heritage, particularly youth living in high-risk circumstances, as well as homeless, street, and foster children in Canada. Dr. Zolner also does scholarly work on integration of religion and spirituality with psychology to support a more full and competent understanding of the human person.

Chapter 1

Child Development: Theories and Themes

Evasilieva/Fotolia

MODULE

1.1 Theories of Child Development

1.2 Themes in Child-Development Research

Terry and Mabel have been together for a while, and, lately, they have been thinking about starting a family. Every time they see a couple with a baby walk by, they wonder about having a child. As they discuss the beliefs their own parents taught them about children, they wonder … what are the most important aspects of and ideas about child development?

1.1 Theories of Child Development

Learning Objectives

After reading the module, you should be able to do the following:

- **LO1** Describe Canada's unique contribution to developmental research.
- **LO2** State the major tenets of the biological perspective.
- **LO3** Explain how psychodynamic theories account for development.
- **LO4** Identify the focus of learning theories.
- **LO5** Describe how cognitive-developmental theories explain changes in children's thinking.
- **LO6** Name the main points of the contextual approach.
- **LO7** Explain recent approaches to the study of child development.
- **LO8** Identify where you can read more about the history of psychology.

Questions about child development have occupied the minds of some of the greatest writers and philosophers in history. For example, nearly 400 years ago, English philosopher John Locke (1632–1704) claimed that the human infant is born *tabula rasa*—as a "blank slate." Locke believed that experience moulds the infant, child, adolescent, and adult into a unique individual. Locke's view was challenged by French philosopher Jean-Jacques Rousseau (1712–1778), who believed that newborns were endowed with an innate sense of justice and morality that unfolds naturally as children grow.

By the middle of the nineteenth century, progress in Western science had merged with growing concerns about children's welfare to bring about the first Western scientific theories of child development. In child development, a **theory** is an organized set of ideas designed to explain and make predictions about development. For example, suppose your friends have a baby daughter who cries often. You could imagine several explanations for her crying. Maybe the baby cries because she's hungry; maybe she cries to get her parents to hold her; maybe she cries because she's simply a cranky baby. Each of these explanations is a very simple theory to explain why the baby cries so much. Formal developmental theories are much more complicated than these, but their purpose is the same—to explain behaviour and make predictions about development.

Theory:
an organized set of ideas designed to explain and make predictions about development; also, any organized set of ideas designed to explain and make predictions about natural phenomena.

In addition to proposing explanations for behaviour and development, theories are a source of predictions that can be tested through research. Think about the different explanations for the crying baby. Each one leads to unique predictions. If, for example, the baby is crying because she's hungry, we predict that feeding her should stop the crying. When results of research match a prediction based on a theory, the theory gains support. When results differ from a prediction, the theory is revised and more research is done.

Many theories have guided research and thought about children's development for the past 100 years. Researchers have embraced some theories for a period and then abandoned them when those theories were disproved or generated few testable

predictions. Nevertheless, understanding historical theories is critical because they set the stage for current theories of child development.

Some theories share common assumptions and ideas about children and development, so they can be grouped together. In the next few pages, we sketch five major theoretical perspectives in child-development research: biological, psychodynamic, learning, cognitive-developmental, and contextual. As you read about each theory, think about how it differs from the others in its explanation of development.

Canada's Unique Contribution

LO1 Describe Canada's unique contribution to developmental research.

Canada's contributions to the field of psychology extend back over 100 years to James Mark Baldwin (1861–1934), who came to Canada from Princeton University and was the first psychologist appointed at the University of Toronto. Baldwin's appointment was controversial largely because he was a "materialist" interested in studying the mind empirically (experientially) and not philosophically (Hoff, 1992). Baldwin set up the very first psychological laboratory in Canada. His initial budget at the University of Toronto was $1550 for set-up, with an annual maintenance allowance of $300—probably a lot of money at that time (Baldwin, 1892). In fact, this was the first psychological laboratory anywhere in the British Empire (1892).

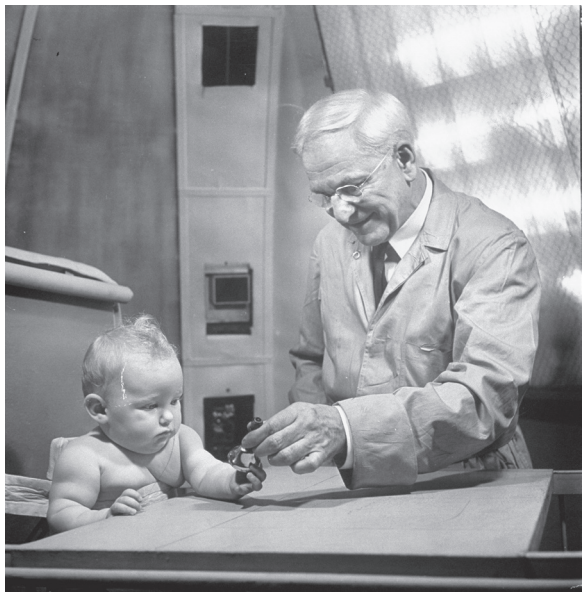
Baldwin's theoretical influence on the field of child development was as important as his experimental lab. He strongly believed that theory must guide experimentation—that theory should come first (Baldwin, 1906). Coming from what we would now call a social-psychological perspective, Baldwin insisted that children's development occurs in stages, an idea that would later be advanced by Jean Piaget. Baldwin believed that development proceeded from simple behavioural movements gradually coordinated into more complex behaviours and leading to adult forms of abstract thought (1906). He theorized about many concepts that child-development researchers continue to investigate today, including research methodology, colour perception, handedness, movements, suggestion, imitation, adaptation, volition, attitudes and expressions, memory, consciousness, thought, and more.

Canada has a strong history of research in child development. While much of this research is conducted at Canadian universities, the Government of Canada (primarily through Statistics Canada and Health Canada) also produces a wealth of researched information about Canadian children's development and the difficulties they face. Another of Canada's contributions to psychology involves access to historical information about the field. In 1997, Dr. Christopher Green, at York University, set up an invaluable website that contains a large number of early works in the history of psychology (http://psychclassics.yorku.ca). Using this resource, you can read many of the original works written by theorists in child development whom we will be discussing next.

The Biological Perspective

LO2 State the major tenets of the biological perspective.

According to the biological perspective, cognitive, personality, physical, and motor development proceed according to a biological plan. The earliest researcher to empirically study and describe children's development was G. Stanley Hall (1846–1924). Hall studied about 100 000 children and interviewed hundreds of



Herbert Gehr/The LIFE Picture Collection/Getty Images

Arnold Gesell

school personnel in an effort to describe the "normal" child (Brooks-Gunn & Johnson, 2006). His goal was to reconstruct the study of psychology to include the study of children, and he based his work on evolutionary biology rather than the physical sciences, as was more common with other researchers (2006).

Approaches to research in evolutionary biology were derived, in Hall's time, primarily from the work of Charles Darwin (1809–1882), who published a theory of evolution that promoted important concepts that have had wide-ranging impact on all areas of scientific study. Most important was Darwin's concept that organisms whose individual traits are best suited, or adapted, for survival in a particular environment are the organisms most likely to survive. As a result, the strongest and fastest organisms are not necessarily the ones that survive, as survival depends on a fit between the characteristics of the organism and the environment in which it lives. If the organism survives, it can reproduce some of its genetic traits in offspring. The best-adapted offspring then reproduce in an ongoing process of environmental adaptation that Darwin termed **natural selection**. Through this theory, Darwin proposed that current traits of animals and people can have an evolutionary history that extends back over generations of reproduction spanning eons of time. Darwin's ideas had a dramatic impact on scientists, particularly those who took a biological approach to understanding development.

Natural selection:
an ongoing process in nature that results in survival of those organisms that are best adapted to their environments.

One of the first biological theories, **maturational theory**, was proposed by Arnold Gesell (1880–1961). According to Gesell, child development reflects a specific and pre-arranged scheme or plan within the body. For Gesell, development is a natural unfolding of a biological plan; experience matters little. Like Rousseau, Gesell encouraged parents to let their children develop naturally. He claimed that, without interference from adults, behaviours like speech, play, and reasoning would emerge spontaneously according to a predetermined developmental timetable.

Maturational theory:
a theory that views development as unfolding according to a specific and pre-arranged scheme or plan within the body.

Other biological theorists give greater weight to experience. Ethological theorists view development from an evolutionary perspective. In **ethological theory**, many behaviours are adaptive—that is, they have survival value. For example, crying is adaptive for infants because it elicits caregiving from others. Ethological theorists assume that people inherit many of these adaptive behaviours, but they also believe that experience is important for development. However, ethologists propose that animals are biologically programmed so that some kinds of learning occur only at critical times in development. A **critical period** is the time in development when a specific type of learning can take place; before or after the critical period, the same learning is difficult or impossible.

Ethological theory:
a theory that views development from an evolutionary perspective, such that human behaviours can be adaptive and have survival value.

Critical period:
the time in development when a specific type of learning best takes place.

One of the best-known examples of the concept of a critical period comes from Konrad Lorenz (1903–1989), a Nobel Prize–winning Austrian zoologist (Brigandt, 2005). Lorenz noticed that newly hatched chicks follow their mother and theorized that chicks are biologically programmed to follow the first moving object they see after hatching. Usually this was the mother, so following her was the first step in **imprinting**, creating an emotional bond with the mother. Lorenz tested his theory by showing that, if he removed the mother immediately after the chicks hatched and replaced her with another moving object, the chicks would follow that object and treat it as "mother." In humans, this emotional bond is called **attachment**, and theories

Imprinting:
the instinctive creation of an emotional bond between a newborn animal and the animal's mother.

Attachment:
the emotional bond that forms between people, particularly children and their parents; also, an enduring social-emotional relationship.

about attachment grew out of biologists' observations of animals' behaviour.

Lorenz also discovered that, for imprinting to occur, the chick had to see the moving object within about a day of hatching. In other words, the critical period for imprinting lasts about a day. When chicks experience the moving object outside of the critical period, imprinting does not take place. Therefore, even though the underlying mechanism is biological, experience is essential for triggering programmed, adaptive behaviours.

Ethological theory and maturational theory both highlight the biological bases of development. Biological theorists remind us that children's genes, which are the product of a long evolutionary history, influence virtually every aspect of children's development.

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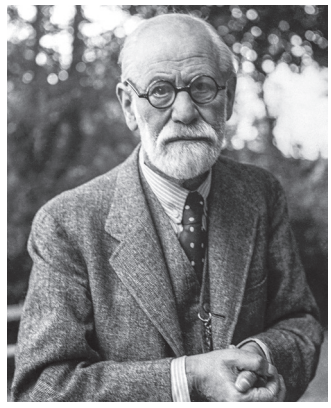
Konrad Lorenz



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Sigmund Freud

The Psychodynamic Perspective

LO3 Explain how psychodynamic theories account for development.

The psychodynamic perspective has its roots in Sigmund Freud's (1856–1939) late nineteenth- and early twentieth-century work. Freud was a physician specializing in diseases of the nervous system. Many of his patients were adults suffering from conditions that had no obvious biological cause. As Freud listened to his patients describe their problems, he theorized that early experiences establish enduring, lifelong patterns. Using his patients' case histories, Freud created **psychoanalysis**, a psychological theory proposing that development is largely determined by how well people resolve unconscious conflicts that arise during development. Freud's original theory has been highly criticized for its limited base of initial research and its controversial claims about women. However, his ideas about personality and psychosexual development have been influential in developmental research.

THEORY OF PERSONALITY. Freud proposed that personality includes three primary theoretical components that emerge at distinct periods of development: the id, ego, and superego.

The **id** is a reservoir of primitive instincts and drives. It is present at birth and presses for immediate gratification of bodily needs and wants. A hungry baby crying illustrates the id in action. The **ego** is the practical, rational component of personality. The ego begins to emerge during the first year of life, as infants learn that they cannot always have what they want. The ego tries to resolve conflicts that occur when the instinctive demands of the id encounter the obstacles of the real world. The ego tries to meet the id's desires with realistic and socially acceptable objects and actions. Suppose, for example, a child, Billy, sees a friend playing with an attractive toy. Billy's id would urge him to grab the toy, but his ego would encourage him to play with the friend and the toy co-operatively.

The third component of personality, the **superego**, is the "moral agent" in the child's personality—the conscience. It emerges during the preschool years as children begin to internalize adult standards of right and wrong. If the friend in the previous example left the attractive toy unattended, Billy's id might urge him to grab it and run; his superego might remind him that taking another child's toy is wrong.

Psychoanalysis:
Freud's psychological theory and method of treatment for unresolved unconscious conflict.

Id:
one of three Freudian components of personality; a reservoir of primitive instincts and drives.

Ego:
one of three Freudian components of personality; tries to realistically meet the demands of the id.

Superego:
one of three Freudian components of personality; acts as the moral agent of personality.

Libido: an instinctive energy or force that motivates humans to experience pleasure.

Environmental reactions: a family's responses to hereditary conditions.

Body ego: a person's sense of the self as an individual.

Psychic skin: a person's capacity for protecting and containing his or her internal emotional states.

Neuropsychoanalysis: the study of the relationship between psychoanalytic theory and biological approaches in psychology.

Psychodynamic theories: theories that are offshoots of Freudian psychoanalysis.

THEORY OF PSYCHOSEXUAL DEVELOPMENT. A second aspect of psychoanalysis was Freud's account of psychosexual development. Freud believed that humans, through a force called **libido**, are instinctively motivated from birth to experience physical pleasure. As children grow, libido shifts to different parts of the body, termed "erogenous zones." For example, in their first year, infants seek pleasure orally, usually by sucking, so Freud called this the oral stage. Freud proposed several developmental stages, each characterized by gratification of needs associated with an erogenous zone (see Table 1–1, A Comparison of Freudian and Eriksonian Stage Theories).

Freud believed that development proceeds best when children's needs at each stage are met but not exceeded. If children's needs are not met adequately, children become frustrated and find moving on to more mature forms of pleasure difficult, and they become developmentally fixated at a certain stage. For example, an adult whose needs for oral stimulation were not met in infancy might try to satisfy those needs by smoking. However, if children are overindulged at one stage, they see little need to progress to more advanced stages. In Freud's view, parents have the difficult task of satisfying children's needs without spoiling them.

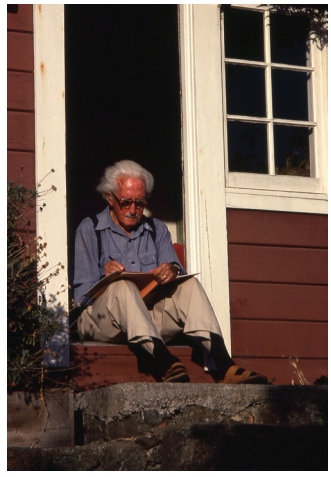
Modern psychoanalytic theorists understand that heredity and environment both influence children, but they also recognize that a family's responses, or **environmental reactions**, to hereditary conditions shape children's adjustment and development (Diem-Wille, 2011). An interesting concept is that of **body ego**, which develops in the early years during the process of closeness and separation between child and parent and contributes to the development of a sense of individual self (2011). Nurturing the child through physical and emotional care also helps to create a **psychic skin**, which holds this sense of self together (Diem-Wille, 2011; Feldman, 2011; Netzer-Stein, 2012). Other developments in this area include the merging of psychoanalytic theory with biological approaches in psychology to produce a new theory called **neuropsychoanalysis** (Bernstein, 2011).

Table 1–1 A Comparison of Freudian and Eriksonian Stage Theories

	Freud: Psychosexual Stages		Erikson: Psychosocial Stages	
Age	**Stage**	**Task**	**Stage**	**Task**
Birth to 1 year	Oral	Erogenous zone: mouth; gratify oral sucking urges	Basic trust vs. mistrust	To develop a sense that the world is safe, a "good place"
1 to 3 years	Anal	Erogenous zone: anus; release and withhold feces	Autonomy vs. shame and doubt	To realize that one is an independent person who can make decisions
3 to 6 years	Phallic	Erogenous zone: genitalia; learn to suppress attraction to the parent of the opposite sex and identify with the parent of the same sex	Initiative vs. guilt	To develop a willingness to try new things and to handle failure
6 years to adolescence	Latency	Erogenous zone: none; libido is repressed as children go about daily business	Industry vs. inferiority	To learn basic skills and to work with others
Adolescence	Genital	Erogenous zone: genitalia; attraction to the opposite sex (not the parent)	Identity vs. identity confusion	To develop a lasting and integrated sense of self
Young adulthood			Intimacy vs. isolation	To commit to another in a loving relationship
Middle adulthood			Generativity vs. stagnation	To contribute to younger people through child-rearing, child care, or other productive work
Later life			Integrity vs. despair	To view one's life as satisfactory and worth living

ERIKSON'S PSYCHOSOCIAL THEORY. Erik Erikson (1902–1994) believed that the psychological and social aspects of development are as important as the biological and sexual aspects that Freud emphasized. Erikson worked with Anna Freud, Sigmund Freud's daughter, at the Vienna Psychoanalytic Institute. Erikson's theory is an offshoot of Freudian theory; therefore, it is a **psychodynamic theory**. Although psychoanalytically trained, Erikson's ideas about lifespan development were rooted in knowledge gained from First Nations peoples in the United States, including the Lakhota and Yurok (Erikson, 2000). In Erikson's **psychosocial theory**, development consists of a sequence of eight stages, each defined by a unique crisis or social challenge (see Table 1–1, A Comparison of Freudian and Eriksonian Stage Theories). The name of each stage reflects the challenge that individuals face at a particular period. For example, the challenge for young adults is to become involved in a loving relationship. Adults who establish this relationship experience intimacy; those who don't experience isolation. George Vaillant has extended and elaborated upon Erikson's original theory and added six adult developmental stages extending from early adulthood to old age: identity, intimacy, career consolidation, generativity, keeper of the meaning, and integrity (Vaillant, 2003).

Psychosocial theory: Erik Erikson's psychoanalytic theory that development occurs in a sequence of stages defined by a unique crisis or social challenge.



Jon Erikson/Science Source

Erik Erikson

Like Freud, Erikson argued that earlier stages of development provide the foundation for later stages. For example, according to Erikson, adolescents who do not meet the challenge of developing an identity will have difficulty establishing truly intimate relationships and risk becoming overly dependent on their partners as a source of identity.

Whether we use the terms "unconscious conflicts," "challenges," or "crises," psychodynamic theorists emphasize that the journey to adulthood is fraught with obstacles. Outcomes of development reflect the manner and ease with which children navigate life's tasks. When children overcome early obstacles easily, they are better able to handle later ones.

The Learning Perspective

LO4 Identify the focus of learning theories.

Learning theorists endorse John Locke's view that the infant's mind is a blank slate on which experience writes. John Watson (1878–1958) was the first theorist to apply this approach to child development. Watson extended the work of Russian researcher Ivan Pavlov on **classical conditioning**, which is a theory of associative learning. These theorists demonstrated that animals and people can learn to respond in a particular manner to a stimulus that normally would not elicit that type of response. For example, dogs normally salivate in response to food but not to the sound of a bell. Pavlov demonstrated that, if a tone were sounded each time a dog smelled food, the dog would begin to salivate in response to the tone without any food being present: The dog would learn to associate the tone with food and respond to it by salivating.

Classical conditioning: a theory of associative learning that later gave rise to behaviourism; also a form of learning in which a previously neutral stimulus elicits a response that was originally produced by another natural stimulus.

Operant conditioning: a behavioural theory about how the consequences of a behaviour can affect future occurrences of that behaviour.

Reinforcement: an action or consequence that increases the future likelihood of the behaviour it follows.

Watson argued that learning is the crucial factor in determining the course of a child's development and behaviour. He assumed that, with correct techniques, anything could be learned by almost anyone. Watson demonstrated his ideas by training 11-month-old "Little Albert" to fear a rat. Each time Albert reached for the animal, the experimenters struck a steel bar with a hammer, producing a loud and frightening sound. Eventually, Albert associated the sound with the rat and began to demonstrate signs of fear with the rat (Watson & Rayner, 1920).

Nina Leen/The LIFE Picture Collection/Getty Images

B. F. Skinner

EARLY LEARNING THEORIES. Following Watson, B. F. Skinner (1904–1990) studied learning through **operant conditioning**, in which the consequences of a behaviour affect whether that behaviour is repeated in the future. Skinner showed that two kinds of consequences were especially influential. A **reinforcement** is a consequence that increases the future likelihood of the behaviour it follows. Positive reinforcement means giving a reward, such as gold stars, praise,

Joseph Helfenberger/Fotolia

In behavioural theory, generating an aversive event and withholding a pleasant event are both forms of punishment for inappropriate behaviour.

or paycheques, to increase the likelihood that a behaviour will recur. Parents can use positive reinforcement to encourage particular behaviours in children by saying, for example, that a half hour of reading will be rewarded with a half hour of playing video games afterward. Negative reinforcement means rewarding by taking away something unpleasant. For example, a half hour of reading before supper is rewarded with getting out of washing the dishes.

A **punishment** is an aversive consequence that decreases the future likelihood of the behaviour it follows. Punishment suppresses a behaviour either by causing something unpleasant to occur or by withholding a pleasant event. For example, if their daughter failed to clean her room, parents could punish her by making her do extra chores (adding something unpleasant) or by not allowing her to watch television (withholding a pleasant event).

Skinner's research was done primarily with animals, but developmental researchers soon showed that the principles of operant conditioning could be used to modify children's behaviour (Baer & Wolf, 1968). Applied properly, reinforcement and punishment have a powerful effect on children, but notice that thinking or cognition does not play a role in early behavioural theory.

Punishment:
an action or aversive consequence that decreases the future likelihood of the behaviour it follows, primarily when the child is in the presence of an authority figure.

Imitation:
behaving in the manner one sees others behaving.

Vicarious (observational) learning:
a method of learning in which one acquires knowledge by watching others' behaviours and the consequences or outcomes of those behaviours.

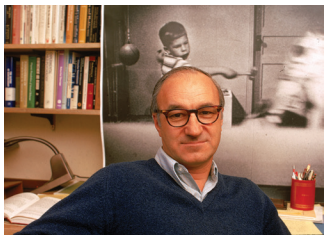
Social cognitive theory:
a theory of personality that views the environment, behaviour, and cognitions as important in shaping development.

Self-efficacy:
beliefs about one's own levels of ability, skill, and talent.

SOCIAL COGNITIVE THEORY. In a groundbreaking article, Alberta-born Albert Bandura (1925) published a critique of learning theory, saying that learning theorists were ignoring the importance of social relationships and the role of imitation in learning. He proposed that people can learn without personal reinforcement simply by watching those around them, through **imitation** or **vicarious (observational) learning** (Bandura, 1962). For example, imitation occurs when a toddler throws a toy after seeing a friend do so, or when a child offers to help an elderly person carry groceries because she's seen her parents do the same.

Children are more likely to imitate a person whom they admire in some way, such as a popular, smart, or talented person, or when they want to fit into a particular group (Over & Carpenter, 2013). Children are also more likely to imitate when they see a behaviour rewarded rather than punished. Children do not automatically mimic what they see and hear; instead, they look to others for information about what behaviours are appropriate. When admired people are rewarded for their behaviour, imitation makes sense.

Bandura based his **social cognitive theory** of personality on this complex view of reward, punishment, and imitation. Bandura called his theory "cognitive" because he believed that children are actively trying to understand their world; the theory is "social" because other people are important sources of information about the world.



Jon Brenneis/The LIFE Images Collection/Getty Images

Albert Bandura

(Bandura, 1997) also argued that experience gives children a sense of **self-efficacy**—beliefs about their own levels of ability, skill, and talent to affect events having an impact on them personally. Self-efficacy beliefs help determine when children will imitate others. A child who sees herself as musically untalented, for example, will not try to imitate Celine Dion singing on stage, despite the fact that Celine is gifted and internationally famous. Thus, whether a child imitates another person depends on who the other person is, whether that person's behaviour is rewarded, and whether the child has beliefs about self-efficacy. For Bandura, the social-cognitive child actively interprets experience using cognition.

The Cognitive-Developmental Perspective

LO5 Describe how cognitive-developmental theories explain changes in children's thinking.

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Jean Piaget

The cognitive-developmental perspective focuses on how children think and how their thinking changes over time. Jean Piaget (1896–1980) proposed one of the best-known of these theories. He believed that youngsters are naturally motivated to make sense of the physical and social world. For example, infants want to know about objects (What happens when I poke this toy?) and people (Who is this person who feeds me?).

Piaget argued that children act like scientists in creating theories about the physical and social worlds they are trying to understand. They try to weave all they know about objects and people into a theory that explains how their world works. When the world works the way the child expects, the child's belief in that theory grows stronger. When events do not go as expected, the child must revise the theory, just as a scientist would. For example, a baby's theory of objects might include the idea that, "If I let go of this rattle, it will fly up in the air." When the baby lets go of the rattle, it falls to the floor, and the baby learns something about rattles. Eventually, babies learn that dropped objects fall to the floor—but they will have to revise that theory when they come into contact with helium balloons!

According to Piaget, at a few points in development, children realize that a theory cannot be revised. When this happens, radical changes take place, the theory is discarded, and a completely new theory about the world develops. Piaget claimed that radical revisions occur three times in development: once at about age 2, a second time at about age 7, and a third time just before adolescence. Piaget theorized that children go through four distinct stages in cognitive development. Each stage represents a fundamental change in how children understand and organize their experiences, and each stage is characterized by more sophisticated types of reasoning. The first of these is the sensorimotor stage. As the name implies, sensorimotor thinking is closely linked to the infant's basic sensory and motor skills (see Table 1–2, Piaget's Four Stages of Cognitive Development).

STUDIO GRAND WEB/Fotolia

According to Piaget, children go through four stages of cognitive development, the first of which is the sensorimotor stage.

Piagetian concepts have been debated widely in psychology, with some researchers rejecting them outright in favour of newer information-processing approaches, which we will discuss later in this chapter. Canadian psychologist Robbie

Table 1–2 Piaget's Four Stages of Cognitive Development

Stage	Approximate Age	Characteristics
Sensorimotor	Birth to 2 years	Infant's knowledge of the world is based on senses and motor skills. By the end of the period, infant uses mental representations.
Preoperational thought	2 to 6 years	Child learns how to use symbols such as words and numbers to represent aspects of the world but relates to the world only through his or her perspective.
Concrete operational thought	7 to 11 years	Child understands and applies logical operations to experiences, provided the experiences are focused on the here and now.
Formal operational thought	Adolescence and beyond	Adolescent or adult thinks abstractly, speculates on hypothetical situations, and reasons deductively about what may be possible.

Case (1944–2000) created what might be thought of as a theoretical hybrid, blending features of Piagetian theory with information-processing theory into what is termed neo-Piagetian theory.

The Contextual Perspective

LO6 Name the main points of the contextual approach.

Culture:
the knowledge, attitudes, beliefs, symbolic representations, and behaviours associated with a group of people.

Ecological theory:
a theory of development that views the child as embedded in a series of complex and interactive systems.

Most theorists agree that the environment is important to development. Traditionally, most child-development theorists have emphasized environmental forces that affect children directly. Examples of direct environmental influences are a parent praising a child or a preschool teacher discouraging boys from playing with dolls. These direct influences are important in children's lives, but, in the contextual perspective, they are one part of a much larger system, with each element of the system influencing all other elements. This larger system includes parents and siblings as well as individuals outside the immediate family, such as extended family, friends, and teachers. The system also includes organizations that influence development, such as schools, television stations, tribal councils, workplaces, and places of worship.

All these people and institutions fit together to form a person's **culture**—the knowledge, attitudes, beliefs, symbols, and behaviours associated with a group of people. A culture provides the context in which a child develops, and it influences development from infancy through adulthood. The word "culture" can be used in a variety of ways, but it generally refers to the way that a group of people organize their families, parent and socialize their children, make laws or rules, cook food, create art, work, celebrate, worship, learn, define their values, and help each other. Often, people who share a culture come from a particular geographical area or share a common history.

WONG SZE FEI/Fotolia

Culture involves the knowledge, attitudes, beliefs, symbols, and behaviours of a group of people.

One of the first theorists to emphasize cultural context in children's development was Lev Vygotsky (1896–1934). A Russian psychologist, Vygotsky focused on ways that adults convey to children the beliefs, customs, and skills of their culture. Vygotsky believed that, because a fundamental aim of society is to enable children to acquire essential cultural values and skills, every aspect of a child's development must be considered in cultural context. For example, many parents in North America want their children to work hard in school and be accepted into postsecondary study because, in Western nations, this can be the key to good employment. However, most parents want their children to acquire important skills for good living, whether those skills involve hunting, house-building, spelling, or running a space station.

SPUTNIK/Alamy Stock Photo

Lev Vygotsky

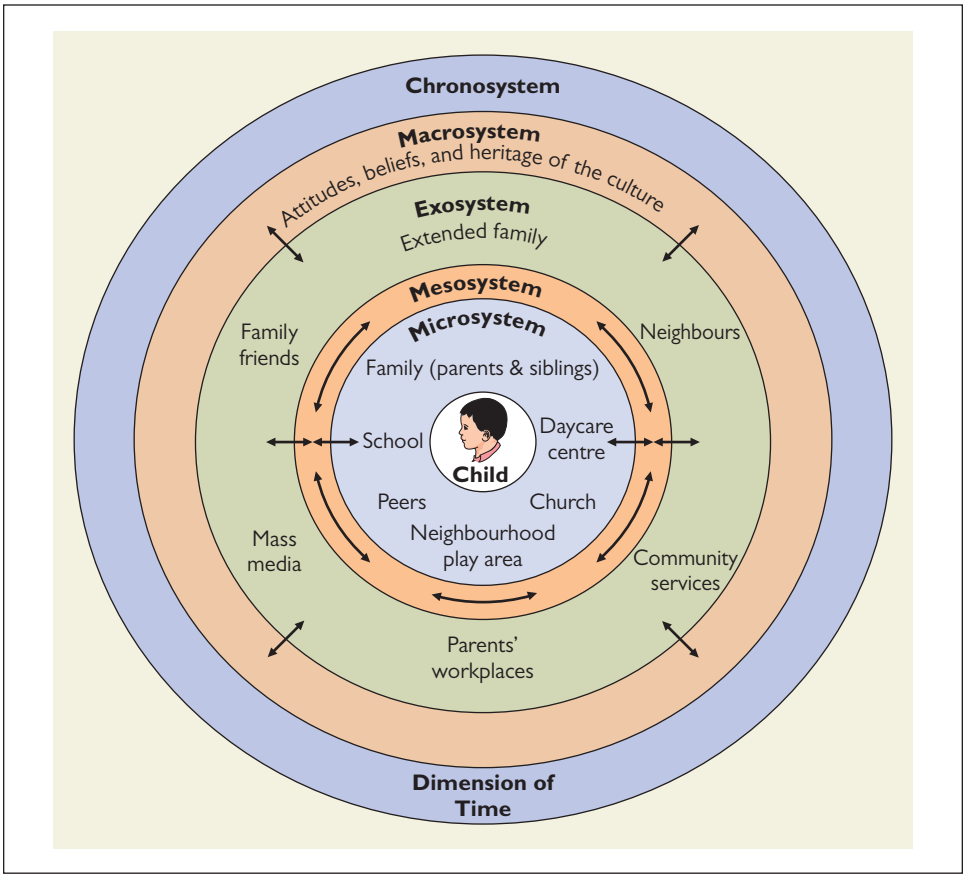
Urie Bronfenbrenner (1917–2005) also promoted a contextual view of development. Bronfenbrenner portrayed the developing child as embedded in a series of complex and interactive systems, sometimes referred to as an **ecological theory**. As Figure 1–1 shows, Bronfenbrenner (1979; 1995; Bronfenbrenner & Morris, 1998) divided the environment into five levels: the microsystem, the mesosystem, the exosystem, the macrosystem, and the chronosystem. At any point in life, the microsystem consists of the people and objects in an individual's immediate environment. These are the people closest to a child, such as parents or siblings. Some children have more than one microsystem; for example, a young child might have family and daycare in his or her microsystem, while some children's microsystems might include extended family. As you can imagine, microsystems strongly influence development.

AP Images

Urie Bronfenbrenner

Microsystems themselves connect to create the mesosystem, which represents the fact that what happens in one microsystem can influence other microsystems. Perhaps you've found that if you have a stressful day at work or school, you're grouchy at home. This indicates that your mesosystem is alive and well; your microsystems of home and work are emotionally interconnected for you.

Figure 1–1 In Bronfenbrenner's theory, the microsystem, the mesosystem, and the exosystem are different environmental systems embedded in the macrosystem, which is the broader cultural context. The chronosystem refers to the time and era in which development occurs.



The exosystem includes social settings that a person might not experience first-hand but that still influence development. For example, a mother's work environment is part of her child's exosystem because she might pay more attention to her child when her work is going well and less attention when she's under work-related stress. Although the influence of the exosystem is second-hand, its effects on the developing child can be strong.

The broadest environmental context is the macrosystem, which includes the subcultures and cultures in which the microsystem, mesosystem, and exosystem are embedded. A mother, her workplace, her child, and the child's school are part of a larger cultural setting, such as Acadian families living in the Maritimes or Jamaican immigrants living in Toronto. Members of these cultural groups share a common identity, a common heritage, and common values. The macrosystem constantly changes because cultures are dynamic and constantly changing. Thus, every generation develops in its own macrosystem. The chronosystem emphasizes that development takes place over time and during certain eras. Changes in children or their environments during development can alter the child's experiences as well as how development progresses over time.

Bronfenbrenner and other contextual theorists would agree with learning theorists that the environment shapes children's development. However, the contextual theorist would insist that "environment" means much more than reinforcements and observations central to learning theory. The contextual theorist would emphasize the different levels of environmental influence on the child beyond the more immediate context of

family relationships. Newer critiques of Bronfenbrenner's theory have pointed out that the theory, with its primary focus on the individual, is limited in its ability to capture the dynamics of individual–group relations. For example, the model does not capture the capacity for an individual to relate to others (Christensen, 2016). As a result, some researchers have suggested adding the concepts of "**resilience**" and "**entrepreneurship**" (Christensen, 2016) to the model, which would place an emphasis on understanding a person's ability to cope with difficulties in life and shape their interactions with others.

Resilience: the capacity of an individual to deal with difficulties in life.

Entrepreneurship: the capacity of an individual to shape their interactions with others.

Finally, some controversy with regard to Bronfenbrenner's theory has arisen with regard to its ability or inability to help with understanding child development in Indigenous cultures. Some have argued that Bronfenbrenner's theory helps people to appreciate the value of culture, place, and context as influencing factors in Indigenous child development as well as the trauma of residential schools (Rose, 2018; Manning, 2017). However, others have pointed out its inability to capture the impact of colonization (Carriere & Richardson, 2012) and its fundamental difference from Indigenous forms of epistemology that do not place the individual solely at the center of focus in development and that do not separate the individual or the family from the natural world, as if it were somehow a matter of simple "context" or a separate type of existence or level from that of the developing child and that child's interpersonal relationships (Cajete, 2003).

Newer Approaches to Child Development

LO7 Explain recent approaches to the study of child development.

In addition to the theories just discussed, some newer approaches in developmental psychology have arisen: in particular, information-processing theory, evolutionary theory, and developmental psychopathology. Information-processing theory is the oldest of these in terms of its research development within the discipline.

INFORMATION-PROCESSING THEORY. Unlike Piaget, not all theorists interested in children's cognition view development as a series of stages. Information-processing theorists draw heavily on the example of how computers work to explain thinking and how it changes over time. Just as computers consist of hardware (disk drives, random-access memory, and a central processing unit) and software (the programs we use), information-processing theorists propose that human cognition consists of mental hardware and software. **Mental hardware** refers to cognitive structures, including memories and where they are stored. **Mental software** includes organized sets of cognitive processes that allow children to perform tasks, such as reading a sentence, playing the piano, or hitting a softball.

Mental hardware: cognitive structures, including memories and where they are stored.

Mental software: organized sets of cognitive processes, such as reading.

Using the example of computers, we can explain how information-processing psychologists explain developmental change in thinking. Today's personal computers can accomplish much more than those built in the 1950s due to better hardware (e.g., more memory and a faster central processing unit) and more sophisticated software (e.g., spell checkers). Like more advanced computers, adolescents have better hardware and software than younger children, who are more like last year's out-of-date model. For example, older children can often solve math word problems better than younger ones because they have greater memory capacity to store the facts of the problem and because their methods for performing arithmetic operations are more efficient.

For both information-processing and Piagetian theorists, children's thinking becomes more sophisticated as they develop. However, Piaget's work is a single, comprehensive theory, whereas information processing represents a general approach based on various research findings about specific components of cognitive development. The advantage of Piaget's work is that it is comprehensive and offers a

theoretically consistent understanding of how development occurs. The advantage of the information-processing approach is that specific components of cognition are described with great precision. Whereas Piaget emphasized the "whole" of cognitive development, information-processing theorists emphasize the "parts." Both views are important for complete understanding of cognitive development.

Another difference between the two approaches is that Piaget emphasized qualitative change in cognition, believing that children's thinking remained at one stage for years and then changed abruptly as it moved into the next stage. In contrast, changes in information-processing ability typically produce a steady increase in cognitive skill. Information-processing approaches focus on cognitive change as continuous and gradual, implying a focus on quantitative change rather than qualitative change. Qualitative change refers to change in type or essence (quality), whereas quantitative change refers to change in amount or value (quantity). As both types of change occur in development, Piagetian and information-processing theory complement each other. In fact, some researchers have attempted to combine the two theories in an effort to come up with stronger cognitive-developmental theories.

EVOLUTIONARY THEORY. As you read earlier, attachment theory grew out of biologists' attempts to understand how animal behaviour promoted survival from an evolutionary perspective. Evolutionary theory itself is not new; however, its use is relatively new in psychology (Bjorklund & Pellegrini, 2000). The central idea in evolutionary theory in terms of child development is that evolution shapes which behaviours and characteristics contribute most to the survival of infants and children and, consequently, the survival of humanity (Bjorklund & Pellegrini, 2000). For example, Martin Smith (1991), developmental researcher at the University of Victoria, has been studying the evolutionary value of grandchild–grandparent relationships as a kind of investment in the survival of one's own kin. This new approach to understanding child development has been called **evolutionary developmental psychology**. Bjorklund and Pellegrini (2000) emphasized the importance of having a unified perspective in psychology, and they described evolutionary theory as one possible overarching approach, or metatheory, to unite the various subfields within developmental psychology and psychology in general.

Evolutionary developmental psychology: an approach to developmental psychology using evolutionary theory as a metatheory of human development in an attempt to have psychologists agree on a unified perspective of humanity.

Bjorklund and Pellegrini (2000) pointed out that evolutionary theory has become the organizing theory for study in the biological sciences, and some areas of developmental psychology include the study of the relationship between genetics and behaviour. Evolutionary psychologists argue that it is adaptive for caregivers to look after their children and help them survive, and they study how children's behaviour helps them adapt on a daily basis.

DEVELOPMENTAL PSYCHOPATHOLOGY. All of the approaches discussed so far in this chapter have focused on normal aspects of child development. However, an area of psychology concerned with children's atypical development has arisen. Like evolutionary theory, **developmental psychopathology** attempts to present a broad, unified understanding of how abnormal development can occur. Eric Mash and David Wolfe are proponents of developmental psychopathology. They view development as a dynamic process that involves continual reorganization and transformation during a person's lifespan (Mash & Wolfe, 2002). As children age, their development becomes increasingly differentiated and integrated into complex and hierarchical networks that are influenced by a multitude of factors. From a developmental psychopathology perspective, many different variables have a role in shaping outcomes of development, including both biological–genetic and environmental variables.

Developmental psychopathology: a theory of child development that tries to explain how abnormal development occurs within a view of development as a dynamic process involving continual transformation during the lifespan.

Although developmental psychopathology focuses on how abnormalities in development can occur, abnormal development cannot be understood without also understanding what is normal. Developmental psychopathology researchers try to

differentiate between what is normal and abnormal from biological, social, emotional, and intellectual perspectives. However, developmental psychopathology is not just a child-development theory; it also includes a focus on diagnosis and treatment of psychological disorders. Therefore, a psychologist would require clinical training before becoming fully competent in this area.

The Big Picture

LO8 Identify where you can read more about the history of psychology.

Comparing so many major perspectives in these few pages is like trying to see all the major sights of a large city in one day. If you dwell too much or too little in any one area, you could end up with an incomplete or biased impression of how psychology has developed historically. The summary in Table 1–3, Characteristics of Developmental Perspectives, gives you a capsule account of all eight perspectives.

Some of the best work in the theory and history of psychology has been done by Canadian psychologists. If you want to read more broadly in this area, you

Table 1–3 Characteristics of Developmental Perspectives

Perspective	Key Assumptions	Specific Theories
Biological	Development is determined primarily by biological forces.	Maturational theory: emphasizes development as a natural unfolding of a biological plan. Ethological: emphasizes the adaptive nature of behaviour and the importance of experience during critical periods of development.
Psychodynamic	Development is determined primarily by how a child resolves conflicts at different ages.	Freud: emphasizes the conflict between primitive biological forces and societal standards for right and wrong. Erikson: emphasizes the challenges posed by the formation of trust, autonomy, initiative, industry, and identity.
Learning	Development is determined primarily by a child's environment.	Skinner: emphasizes the role of reinforcement and punishment in response to behaviour. Bandura: emphasizes children's efforts to understand their world using reinforcement, punishment, and others' behaviour.
Cognitive-Developmental	Development reflects children's efforts to understand the world.	Piaget: emphasizes the different stages of thinking that result from children's changing theories of the world.
Contextual	Development is influenced by immediate and more distant environments, which typically influence each other.	Vygotsky: emphasizes the role of parents (and other adults) in conveying culture to the next generation. Bronfenbrenner: emphasizes the influences of the microsystem, mesosystem, exosystem, macrosystem, and chronosystem.
Information-Processing	Development is understood by analogy to the workings of a computer, with mental hardware and software as well as input and output processes.	Information-processing theory: emphasizes changes in thinking that reflect changes in mental hardware and mental software. No unified theory exists, but a variety of individual models have been proposed by a number of researchers.
Evolutionary	Development is influenced by the process of evolution, which favours characteristics of children that have value to the survival of the species.	Bjorklund and Pellegrini: emphasize evolutionary theory as a possible unifying metatheory uniting various subfields within developmental psychology as well as psychology in general. Martin Smith: emphasizes the survival value of relationships between grandparents and grandchildren.
Developmental Psychopathology	Developmental outcome is shaped by many different variables, including both biological-genetic and environmental factors.	Mash and Wolfe: emphasize dynamic transformation throughout the lifespan and focus on how abnormal development can occur.

might consider perusing the journal *Theory and Psychology*, which is produced out of the University of Calgary and publishes articles from scholars all over the world. Psychologists in Canada particularly noted for their writings include Charles Tolman (Victoria), John Mills (British Columbia), Leendert Mos (Alberta), Christopher Green (York), and Henderikus Stam (Calgary). Other Canadian psychologists have made significant contributions to our understanding of theory and history in psychology, contributing to an important base of learning in the discipline. In addition, several noted Canadian psychologists sit on the editorial board for the American Psychological Association's journal *History of Psychology*, which is also an important resource.

As we mentioned at the beginning of this module, some of these theories are no longer considered valid as comprehensive theories of development. Nevertheless, they have all been invaluable in fostering research that led psychologists to formulate modern theories. For example, few psychologists today believe that Piaget's theory provides the definitive account of changes in children's thinking. Even so, this theory forms the foundation for a number of modern theories, including theories about infants' understanding of objects and preschoolers' theory of mind, and it has spawned neo-Piagetian research on development. Similarly, Erikson's theory has become less prominent in research but has contributed to work on mother–infant attachment and formation of identity during adolescence.

These examples reflect a common trend in theories of child development. Classic developmental theories were very broad, attempting to account for development across a wide age range and a variety of different phenomena. For the most part, this approach has given way to theories that account for much more restricted phenomena, usually across a narrower age range (e.g., understanding of objects in infancy and identity formation in adolescence). In general, this shift produces theories that are more precise in the sense that they are more likely to produce specific, testable hypotheses. What's lost in the change, of course, is breadth: Modern theories are less likely to make connections between different phenomena.

Throughout this text, you will read about modern theories that are derived from the various perspectives listed in Table 1–3, Characteristics of Developmental Perspectives, because no single perspective provides a truly complete explanation of all aspects of children's development. Theories from the cognitive-developmental perspective are useful for understanding how children's cognition changes as they grow older. Theories from the contextual and learning perspectives are particularly valuable in explaining how environmental forces such as parents, peers, schools, and culture influence children's development. By drawing upon all the perspectives, we'll be better able to understand the different forces that contribute to children's development. Just as you can better appreciate a beautiful painting by examining it from different viewpoints, developmental researchers often rely upon multiple perspectives to understand why children develop as they do.

Ask Yourself

Freud and Piaget both proposed stage theories of children's development. Although the theories differed in emphasis—Freud was concerned with psychosexual growth and Piaget was concerned with cognitive growth—can you see similarities in their approaches to development?

1.2 Themes in Child-Development Research

Learning Objectives

After reading the module, you should be able to do the following:

LO9 Demonstrate how well developmental outcomes can be predicted from early life.

LO10 Understand how heredity and environment influence development.

LO11 Specify what role children have in their own development.

LO12 State how development in different domains is connected.

Several fundamental themes occur in child-development research and form the focus of this module. These themes provide a foundation you can use to organize the many specific facts about child development that fill this text. Four themes will help you unify your own understanding of child development. Also, every chapter ends with Critical Review questions that will help you link topics, themes, and theories across age ranges.

Here are the four unifying themes.

Early Development Is Related to Later Development but Not Perfectly

LO9 Demonstrate how well developmental outcomes can be predicted from early life.

This theme has to do with the "predictability" of development. Do you believe that happy, cheerful 5-year-olds remain outgoing and friendly throughout their lives? If you do, this shows that you believe development is a continuous process. According to this view, once a child begins going down a particular developmental pathway, he or she stays on that path throughout life. In other words, if a child is friendly and smart at age 5, that child should be friendly and smart at ages 15 and 25. The other view, however, is that development is not continuous. According to this view, a child might be friendly and smart at age 5, obnoxious and foolish at 15, and quiet but wise at 25! Thus, the continuity versus discontinuity issue is really about the "connectedness" of development: Are early aspects of development consistently related to later aspects?

In reality, neither of these views is accurate. Development is not perfectly predictable. A friendly, smart child does not guarantee a friendly, smart adolescent or adult, but the chances of a friendly, smart adult are greater than if the child were obnoxious and foolish. There are many ways to become a friendly and smart 15-year-old; being a friendly and smart 5-year-old is not a required step, but it is probably the most direct route!

Development Is Always Jointly Influenced by Heredity and Environment

LO10 Understand how heredity and environment influence development.

Parents who have more than one child can be surprised to find out that one of their children might be cheerful and easy to soothe, while another might be easily irritated and hard to console when fussing. What roles do biology (nature) and environment (nurture) play in child development? If a child is outgoing and friendly, is it due to heredity or experiences in the world? Scientists once hoped to answer questions like this by identifying either heredity or environment as the cause. Their goal was to be able to say, for example, that intelligence was due to heredity or that personality was due to experience. In his years at the University of Toronto around the turn of the twentieth century, Baldwin advanced the idea that development is jointly influenced by nature and nurture. Today we know that Baldwin was correct in that virtually no aspects of child development are due exclusively to either heredity or environment. Instead, development is always shaped by both—nature and nurture interact. In fact, a major aim of developmental research is to understand how heredity and environment jointly determine children's development. Biology will be more influential in some areas and environment in others. In addition, even within the idea of "environment," some cultures more greatly emphasize the role of children in cultural experiences and practices, whereas other cultures might downplay children's readiness to be active contributors to their social world while they are still very young. Biological and environmental factors vary greatly, and both are complex domains of study within child development.

Children Help Determine Their Own Development

LO11 Specify what role children have in their own development.

When teaching child development, we sometimes ask students about their ideas for child-rearing. It's interesting to hear students' responses. Many have big plans for their future children. It's just as interesting, though, to watch students who already have children roll their eyes in a "You don't have a clue" way at what the others are saying. The students in class who are parents admit that they too once had grand designs about child-rearing. What they quickly learned, however, was that their children help shape the way in which they parent.

These two points of view illustrate the active–passive child issue: Are children simply at the mercy of the environment (passive child) or do children actively influence their own development through their unique individual characteristics (active child)? The passive view corresponds to Locke's description of the child as a blank slate on which experience writes, whereas the active view corresponds to Rousseau's view of development as a natural unfolding that takes place within the child. Today we know that experiences are indeed crucial, but not always in the way Locke envisioned. Often it's a child's interpretation of experience that has an important impact on shaping development. From birth, children try to make sense of their world; in the process, they help shape their own futures.

In addition, the unique characteristics of children contribute to the experiences they have with others. The parent–child relationship is a complex interplay of dynamics that are continually affected by the personalities and experiences of the people within the relationship. On the one hand, a highly defiant child might encourage

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How would defiance affect parental behaviour in the future?