

An Introduction to **Child Development**

Thomas Keenan, Subhadra Evans & Kevin Crowley

3rd
Edition

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An Introduction to **Child Development**

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This book is dedicated to Holly who has taught me more about children than
I'll ever discover on my own.

Thomas Keenan

To Kaia and Bodhi, sparks of splendour and masters of mischief. Thank you
for being patient and for sharing your stickers with me.

Subhadra Evans

To Amy and Ioan who continue to provide me with the most practical
of introductions to child development.

Kevin Crowley

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Guided Tour

LEARNING AIMS

This feature provides an overview of the content covered in the chapter and outlines what you will learn in the course of reading it.



Key Concepts in orange

Words appearing in **orange** throughout the text indicate key concepts that you should understand, remember and be able to explain after reading the chapters.



Point for Reflection boxes: these are designed to help you stop and think about what you have been reading and consider the subject matter more deeply.

Research Example boxes

These boxes focus on specific pieces of research: from landmark studies to cutting-edge journal articles or experiments. These place the subject matter in real-life contexts, and demonstrate the diversity and rigour of the kinds of research being pursued in this field.

Chapter Summary

The chapter summary reviews the main concepts and issues covered in the chapter to reinforce the key learning aims.

Glossary

Located at the end of each chapter, this allows you to look up important terms and concepts introduced in the chapter quickly and easily.

TEST YOUR KNOWLEDGE

These multiple-choice questions help you to check your understanding of the chapter contents and revise for exams.

Suggested Reading



This feature contains a brief outline of key books, reports and additional articles which you may find helpful if you wish to learn more about a particular topic.



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- **Weblinks**, which direct you to relevant resources to broaden your understanding of chapter topics and expand your knowledge.
- A **flashcard glossary**, which features terms from the book, as an ideal tool to help you get to grips with key concepts, terms and revise for exams.
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- **Testbanks**, containing questions related to the key concepts in each chapter can be downloaded and used in class, as homework or exams.

Preface

Background

Developmental psychology is a vibrant and rapidly growing field of psychology that seems, with each passing year, to become more and more exciting, comprehensive and, ultimately, more challenging. And this excitement, this challenge, is not something that is only felt by developmental psychologists themselves! The findings of developmental psychology continue to fascinate the media, to inform educators and assist in the creation of sound educational policy, to aid in the development of government policy that is designed to maximize population health and well-being, and to help parents in their attempts to better understand, raise, and interact with their own children. Students of developmental psychology today will find themselves faced with a growing body of information, most of which they can never hope to truly master due to the ever widening scope of the field. In large part, this is because of the nature of the study of developmental psychology as a field of scientific inquiry. As David Buss (1995) has pointed out, developmental psychology can be thought of as an approach that one takes to some field within psychology. That is, a developmental psychologist is fundamentally interested in understanding change across the life span in some domain of development such as thinking and reasoning, emotion, personality, social understanding, or language. As a consequence, most developmental psychologists end up specializing within a given area of development after their undergraduate and postgraduate training. This specialization reduces the burden somewhat, but it is still the case that many developmental psychologists feel a strong need to keep abreast of theoretical and methodological innovations in the field as a whole in addition to their own areas of specialization, especially as an awareness of these innovations tends, in many cases, to lead to important developments within a given domain of inquiry.

Developmental Psychology Today

The rapid growth of developmental psychology is readily observed in the large number of textbooks devoted to laying out the fields of developmental psychology and child development and by the number of courses in university undergraduate and postgraduate programmes and college diploma offerings that focus on the growth and development of children from infancy through to old age. Typical courses in developmental psychology found in many psychology programmes will include titles such as: *An Introduction to Developmental Psychology*, *Child Development*, *Adolescent Development*, *Adult Development*, *The Psychology of Aging*, *Life-span Development*, *Research Methods in Developmental Psychology*, *The Psychology of the Family*, and so on.

In addition to these courses, there are a large number of societies devoted to supporting and distributing research on child development and developmental psychology. Most countries have their own societies to support developmental psychology. In the UK, the British Psychological Society established the Developmental Psychology Section in 1980 (see www.bps.org.uk/dps). In the USA, developmental psychology is represented within the American Psychological Association as Division 7 (see www.apa.org/about/division/div7.html) and child development is represented more specifically by The Society for Research in Child Development (see www.srkd.org), which lists some 5,500 members from around the world. In Canada, there is a developmental section of the Canadian Psychological Association (see www.cpa.ca/sections/developmental), in Australia, the Australasian Human Development Association (www.ahda.org), and in Europe, there is the European Association for Developmental Psychology (www.eadp.info). These societies work to support, develop and disseminate research on developmental psychology and organize conferences and workshops that support these activities.

There are a large number of international journals that support the dissemination of research related to developmental psychology and child development. There are too many journals supporting developmental research to provide a full list here, but a sampling of some of the top journals (and journals which you may find useful in your own studies on child development) include: *Child Development*, *Developmental Psychology*, *Human Development*, *The British Journal of Developmental Psychology*, *Developmental Review*, *Developmental Science*, *Applied Developmental Science*, *The European Journal of Developmental Psychology*, *The Merrill Palmer Quarterly*, *The Journal of Applied Developmental Psychology*, and *Developmental Psychopathology*. Remember, this list is just a small sample of some of the journals available, and developmental research is regularly published in other major journals, such as *Psychological Bulletin*, *Psychological Review*, and *Psychological Science*.

Individuals with a background in developmental psychology or child development will work within a variety of professional fields. Many of those interested in child development will also go on to become researchers in the field, working in universities as academics or in centres devoted to research on child development, such as the National Institutes of Mental Health (www.nimh.org) in the USA. Others with a background in child development will often choose to work more directly with children, entering fields such as teaching, early childhood education, and paediatric nursing, or will become social workers or clinical psychologists who may work with children facing difficulties.

The Structure of the Text

One of our goals in writing this book was to provide you with a brief but comprehensive survey of some of the key issues and findings in the field of child development. The text is divided into five sections, with each section containing a number of chapters. Section I, *Introduction, Theories and Methods*, is made up of three chapters. Chapter 1 is intended to provide you with a background to the study of child development by locating the field as a branch within the study of developmental

psychology, by highlighting the principles which guide the study of development from a life-span approach, and then by introducing you to some important concepts and key issues within the contemporary study of child development. Chapter 2 surveys a number of theories, both those which are historically significant and modern theoretical developments that are relevant to the study of child development. Chapter 3 addresses the issues surrounding how developmental psychologists actually go about the business of conducting research on children's development.

Section II, *The Biological Foundations of Development*, examines children's physical growth and motor development as well as the nature of interactions between genes and the environment and the implications for development (Chapter 4). In Chapter 5, 'The Developing Brain', we describe the development of the brain and central nervous system and how the brain's development is critical to understanding child development. Section III is entitled *The Development of Perception, Cognition and Language*, and contains four chapters addressing each of these topics. Chapter 6 focuses on perceptual development, particularly the rapid development of our senses. We see that infants are born with a remarkable and rapidly developing ability to make sense of their world over the first few months of life. Chapter 7 addresses theories of cognitive development while Chapter 8 looks at the development of specific cognitive processes such as memory, attention and problem solving. Section 3 concludes with Chapter 9, 'The Development of Language and Communication', in which we cover various theories of language development and the growth of communicative abilities throughout infancy and childhood.

Section IV, *Emotional, Social and Moral Development*, contains chapters on emotional development (Chapter 10), social development (Chapter 11) and moral development (Chapter 12). In Chapter 10 we study emotional development, looking at the course of emotional development, emotional control, the development of an attachment to caregivers and, finally, the concept of temperament. In Chapter 11, the concept of social development is introduced. Chapter 11 explores the growth of social relations, the nature and functions of play, how conceptions of friendship change with age, the importance of peer acceptance, and the role of an understanding of minds in social behaviour. Finally, in Chapter 12, the study of moral development is taken up through an examination of key theories of moral development and moral reasoning, the development of empathy, prosocial behaviour and distributive justice, and the development of aggressive behaviour.

In Section V, *Applied Human Development*, we examine the nature of psychopathology in childhood in Chapter 13, 'Developmental Psychopathology'. This chapter examines the unique approach to psychopathology taken by developmentalists and explores some of the more common disorders of childhood, including anxiety, depression, and attention deficit disorder. The chapter also looks at the factors that place some children at greater risk of developing psychopathology, as well as factors that promote resilience in the face of adversity.

How to Use This Book

As you move through the book, you should notice that throughout the chapters some words appear in orange type. These words indicate key concepts that you should understand, remember and be

able to describe. A useful method to enhance your ability to remember the meaning of these terms is to think through the definition carefully and then re-cast it in your own words. It can also prove very helpful to associate new terms with examples from the text that you can illustrate the meaning in a more concrete fashion. Within each chapter there are text boxes that focus on a specific piece of research. We have chosen these examples to illustrate the diversity and rigour of the kinds of research being pursued in the field of child development. Each chapter also has a number of reflection points. These are questions encouraging you to ‘stop and think’ about what you have been reading. Some of the questions will encourage you to think about your own personal experiences in relation to the subject matter being covered. Other questions will ask you to consider how material in previous chapters might also be useful in understanding the current chapter. We have also included one or two images in each chapter to reinforce some of the salient points being made about development. Each chapter also contains a glossary – a list of these important concepts – which should allow you to look up terms quickly and easily. Each chapter ends with a brief multiple choice test that will allow you to quickly test your memory for the material you have just read. Finally, each chapter ends with some suggestions for further reading, articles or chapters that you may find helpful if you wish to learn more about a given topic.



INTRODUCTION, THEORIES AND METHODS

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The Principles of Developmental Psychology

1

Chapter Outline

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Maturation versus experience in development: the nature–nurture debate	17
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LEARNING AIMS

At the end of this chapter you should:

- be able to articulate the principles of a life-span developmental approach
- be able to explain the different meanings of *development*
- be familiar with and able to describe the key issues in the study of child development
- be familiar with the major historical approaches to understanding child development
- be aware of the evidence relevant to both sides of these issues



Introduction

The world abounds with budding psychologists. The fact that you are sitting down right now reading this text suggests that you may be one yourself. At the least, you are likely to be interested in understanding yourself or any number of other people, including your parents, siblings, friends or even children in general. How can we best gain insight into our own and our family members' past actions and predict their future behaviour, emotions and cognitions? The field of psychology, in general, and developmental psychology, in particular, is concerned with these very questions. We hope, through reading and studying this text, you will gain greater awareness of a number of important psychological questions, including how we develop and grow as a fetus from the very beginning, to how children learn about moral behaviour, and what happens when things go wrong with typical development. As you will discover, there are still many unanswered questions, but we are increasingly expanding on the knowledge of previous generations of psychologists. Perhaps you will become one of the very scientists working so hard to fill in the gaps of our knowledge about human development.

Life-span developmental psychology is the field of psychology which involves the examination of both constancy and change in human behaviour across the entire life span, that is, from conception to death (Baltes, 1987). Table 1.1 below shows the age periods that child development is typically divided into. Developmental psychologists are concerned with diverse issues, ranging from the growth of motor skills in the infant to the gains and losses observed in the intellectual functioning of the elderly. The goal of study in developmental psychology is to further our knowledge about how development evolves over the life span, developing a knowledge of the general principles of development and the differences and similarities in development across individuals. The range of topics comprising the study of modern psychology is vast, and encompasses sub-areas as diverse as social psychology, comparative psychology, the study of learning,

Table 1.1 Age periods for the study of child development

Period	From–to
Prenatal period	Conception to birth
Infancy and toddlerhood	Birth–2 years
Early childhood	2–6 years
Middle childhood	6–11 years
Adolescence	11–18 years
Early adulthood	18–25 years

neuropsychology, abnormal psychology, and cognitive psychology. However, the study of development is possible *within* each of these areas. Thus, in one sense, developmental psychology can be thought of as an *approach* that one takes to the broader study of psychology (Buss, 1995).

This text focuses on a relatively narrow portion of the life span, specifically the time development between conception and adolescence. This area of study is known as the study of **child development**. Understanding children is important in its own right and also has the potential to significantly inform us about the nature of human development. By studying the earlier forms of behaviour and the changes which behaviour undergoes, we can gain a better understanding of the ‘end product’, that is, adult behaviour. While this text focuses specifically on children’s development, the wider principles of life-span developmental psychology (which we discuss shortly) apply as equally to this area as they do to the study of development across the life span.

What is ‘Development’?

When we speak of **development**, what in fact are we referring to? One frequently used definition refers to this as *patterns of change over time which begin at conception and continue throughout the life span*. Development occurs in different domains, such as the *biological* (changes in our physical being), *social* (changes in our social relationships), *emotional* (changes in our emotional understanding and experiences), and *cognitive* (changes in our thought processes). Some developmental psychologists prefer to restrict the notion of development only to changes which lead to *qualitative* reorganizations in the structure of a behaviour, skill or ability (Crain, 2000). For example, Heinz Werner (1957) argued that development refers only to changes which increase the organization of functioning within a domain. Werner believed that development consisted of two processes: **integration** and **differentiation**. Integration refers to the idea that development consists of the integration of more basic, previously acquired behaviours into new, higher-level structures. For example, according to Piaget (1952), a baby who learns to successfully reach for objects has also learned to coordinate a variety of skills, such as maintaining an upright posture,

moving their arm, visually coordinating the position of their hand and the object, and grasping the object under an integrated structure called a *scheme*. New developments build on and incorporate what has come before.

Differentiation refers to the idea that development also involves the progressive ability to make more distinctions among things, for example, learning to adjust one's grasp to pick up small objects (which requires the use of the fingers and fine motor control) versus larger objects (which only requires closing the hand around the object and less fine motor control). Werner defined development as a combination of these two processes of integration and differentiation: he saw development as a process of increasing hierarchical integration and increasing differentiation. Of course, Werner's view of development is by no means universally accepted within developmental psychology. Many developmentalists argue that anything which evidences change over time is relevant to the study of development (Crain, 2000). Thus, this debate remains a tension within the study of human development.



As we have just seen, we can identify different domains within which development occurs. However, can you think of the ways in which development in one domain might also impact on developments in another?

The Study of Child Development: A Brief History

Developmental psychology emerged as an area of study early on in the history of psychology. Charles Darwin, the founder of evolutionary theory, was an early pioneer in the study of children. Darwin (1877) kept records about the development of his own infant son, and used the data he collected to understand human development in light of the theory of evolution by natural selection. Darwin's work and a host of similar records of children's development – known as *baby biographies* – were among the first studies of human development and the source of many modern ideas about children's development (Charlesworth, 1992). Baby biographies were often criticized for their emotional and biased descriptions of children, yet it is also recognized that many of the early baby biographers, such as William Preyer, set extremely high standards for observing and recording behaviour accurately (Cairns, 1998).

One of the first developmental psychologists was the American psychologist G. Stanley Hall. Hall's research in child development focused on questions such as *what do children know when they go to school?* In an early paper entitled 'The Contents of Children's Minds on Entering School' (Hall, 1891), Hall used questionnaires and interviews to assess what children knew: information that can be potentially of great use to teachers. Hall (1904) also published on adolescence, describing adolescence as a time of *sturm und drang* (or storm and stress). In short, Hall believed emotional turbulence and conflict were a normative part of adolescence, a view which today is not widely confirmed by research (Steinberg, 1990).

In Canada, a significant event in the history of developmental psychology was the appointment of James Mark Baldwin to the faculty of the University of Toronto in 1889 (Green, 2004). Baldwin was a pioneer in the area of mental development, studying topics ranging from imitation to intentionality (see Chapter 11 for further discussion of intention and the child's theory of mind). Another major development in Canada was the opening of the St George's School for Child Study in 1926, headed by the developmental psychologist William Blatz. Blatz was famous for his study of the Dionne quintuplets, a group of five sisters (Blatz, 1938).

The psychologist John B. Watson (1928) took a very different approach to child development from Hall and other early pioneers. Watson argued for the primacy of environmental influences on children's development. In short, his view was that all development was ultimately the result of learning. Watson pioneered the study of learning mechanisms and contributed greatly to modern learning theories. He is also famous, or perhaps infamous, for his Little Albert experiment (described in Research Box 2.1). In contrast, Arnold Gesell took a position that was the opposite of Watson's. Gesell (1925) believed that development was the result of our genetic endowment, a view that is known as **maturationalism**. Gesell focused on describing the *norms* that characterized children's development, concentrating on *when* children typically acquire a given behaviour (such as walking) and the extent to which many behaviours are affected by environmental influences such as practice or training.

The study of children's development has also been greatly influenced by the work of a group of prominent twentieth-century psychologists, laying the foundations for the field of developmental psychology as it exists today. Jean Piaget (1896–1980) took an *organismic* approach to cognitive development, arguing that it was the development of mental structure within the child's mind that determined how that child understood the world. Under Piaget's view, cognitive development is a constant dance between the way in which a child's cognitive structures shape their view of the world, and the need for that child's cognitive structures to adapt or change in light of new information or learning. The interplay between these two processes leads to a continual reorganization of knowledge into knowledge structures that are better adapted to the world.

In contrast to Piaget's work, the Russian psychologist Lev Vygotsky postulated a sociocultural theory of cognitive development (Vygotsky, 1978). Vygotsky argued that a child's cognitive development occurred within the context of *social* interactions with more experienced members of that child's culture, making cognitive development a truly social process. Children build on their innate perceptual and memory skills and acquire the *mental tools* of their culture, such as language and number, as well as the symbol systems that allow them to manipulate and reflect on these tools. For Vygotsky, understanding children's development was a matter of understanding children's acquisition of these mental tools (Rogoff, 1990).

Broader changes within the field of cognitive psychology during the 1960s had an important influence on the study of children's cognitive development. The study of *information processing*, or how information is taken in and flows through a child's cognitive system causing various outputs or responses, was an important influence on developmental psychologists interested in children's thinking (Klahr & Macwhinney, 1998). Information processing psychologists most often focus on how children take in or encode information from their environment, how they represent it to themselves, and how they operate on their representations of knowledge to create

outputs or products (Siegler, 1998), like the solution to a math problem or an answer to a question about what Winnie the Pooh will do next.

This review of the history of developmental psychology is by no means full or complete, and the interested student is recommended to pursue fuller accounts of the history of the discipline. However, it will allow us to go on and examine development within a variety of domains while understanding something of the origins of many of the ideas we will encounter.

Principles of Life-span Development

One of developmental psychology's eminent researchers, the late Paul Baltes (1939–2006), articulated a set of principles which guide the study of human development within a life-span framework. Baltes (1987) argued that these principles form a family of beliefs which specify a coherent view of the nature of development. It is the application of these beliefs as a coordinated whole which characterizes the life-span approach. Thus, Baltes often focused on old age in his later writing and research, but he described the issues of ageing – including wisdom, decline and changing relationships – in the context of the entire life span. We have therefore learned about human development in its entirety from his work. In this book, although we focus on development in children, we will similarly take a life-span approach to the study of development.

Baltes (Baltes & Smith) have identified a number of overarching themes with which developmental psychology is concerned. These include studying the similarities in people's development, studying the differences in their development, and examining the degree to which an individual's development is changeable, within an overall cultural context. In addition to these overarching themes, Baltes (1987) has identified a number of more specific principles of development.

The first principle is that *development is life-long*. This belief has two separate aspects. First, the potential for development extends across the entire life span: there is no assumption that the life course must reach a plateau or decline during adulthood and old age. Second, development may involve processes which are not present at birth but emerge throughout the life span. Development is also *multidimensional* and *multidirectional*. Multidimensionality refers to the fact that development cannot be described by a single criterion such as increases or decreases in a behaviour. The principle of multidirectionality maintains that there is no single, normal path that development must or should take. In other words, healthy developmental outcomes are achieved in a wide variety of ways. Development is often comprised of multiple abilities which take different directions, showing different types of change or constancy.

Another principle is that development involves both *gains and losses*. According to Baltes, any developmental process involves aspects of growth and decline. For example, formal schooling increases a child's knowledge base and develops their cognitive abilities, but also restricts their creativity as they learn to follow rules defined by others. These two aspects of growth and decline need not occur in equal strength and, moreover, the balance between gains and losses can change with time.

A fifth principle articulated by Baltes (1987) is that development is *plastic*. Plasticity refers to the within-person variability which is possible for a particular behaviour or development.

For example, infants who have a hemisphere of the brain removed shortly after birth (as a treatment for epilepsy) can recover the functions associated with that hemisphere as the brain reorganizes itself and the remaining hemisphere takes over those functions. Further research on the topic of such *neuroplasticity* will be described in Chapter 5. A key part of the research agenda in developmental psychology is to understand the nature and the limits of plasticity in various domains of functioning.

The sixth principle states that development is also situated in *contexts* and in *history*. Development varies across the different contexts in which we live our lives. For example, social and rural environments are associated with different sets of factors which have the potential to impact on development: understanding how development differs for individuals within these two settings requires an understanding of the differing contexts. Development is also historically situated, that is, the historical time period in which we grow up affects our development.

Finally, Baltes suggested that the study of developmental psychology is *multidisciplinary*. That is, the sources of age-related changes do not lie within the province of any one discipline. For example, psychological methodologies may not be appropriate for understanding factors that are sociological in nature. Rather, an understanding of human development will be achieved only by research conducted from the perspective of disciplines such as sociology, linguistics, anthropology, and computer science.



Image 1A According to Baltes, development is historically situated. Children currently have unprecedented access to technology, representing a distinct normative history-graded influence

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Contextualism in developmental psychology

As we have seen, Baltes (1987) stressed the importance of contextualism to the study of life-span development. In order to create a coherent framework for understanding contextual influences, Baltes proposed a three-factor model of contextual influences on development (Baltes, Reese, & Lipsitt, 1980). The first factor is **normative age-graded influences**. These are the biological and environmental influences that are similar for individuals in a particular age group. Examples of normative age-graded influences are events such as puberty or the entry into formal schooling. A second type of influence is what Baltes referred to as **normative history-graded influences**. These are biological and environmental influences associated with historical periods in time which

influence people of a particular generation. For example, the effects of World War II on much of the world's population, or the changes in the structure of government experienced by the people of the Soviet Union during the 1980s, would constitute examples of normative history-graded influences. *Nonnormative life events* are unusual occurrences that have a major impact on an individual's life. The occurrence of these events is relatively unique to an individual and is not tied to an historical time period. Moreover, the influence of these events often does not follow a typical developmental course. Being struck down with a major illness or losing a parent in childhood are examples of this kind of contextual influence. It is important for developmentalists to recognize that explanations of behavioural development are likely to be complex and require consideration of the wide variety of possible influences on a given individual's development.



Can you think of any examples of nonnormative life events that might have a positive impact on development?



Image 1B Parenting practices vary along cultural norms. In many parts of the world, older siblings help in the care of younger siblings

Source: Monique K. Hilley/Wikimedia Commons

Cultural context

The importance of culture and context to a child's ongoing development is becoming increasingly apparent. Two prominent theorists who we will explore in the next chapter, Lev Vygotsky and Urie Bronfenbrenner, were ahead of their time in proposing theories of human development that accounted for the child's sociocultural influences. However, many of developmental psychology's forefathers failed to acknowledge the impact of culture on child development. Thankfully, we have learnt much from other disciplines concerned with understanding the impact of culture on human behaviour, including anthropology, and the field of cross-cultural developmental psychology is growing.

At times research questions may be universal and seem to apply to all children everywhere, such as having a predisposition to acquire language, but very often characteristics and skills are acquired in a way that varies from one culture to another. For example, almost all children will eventually learn to walk, but the timing and order of motor skill acquisition vary as a result of how mobility is encouraged within a culture. Among the Kipsigis of Kenya, babies typically learn to walk before children in most other countries, and often walk before they can crawl, due to parenting practices of actively encouraging infants to keep upright and bouncing them on their feet (Super, 1981).

Parenting practices consistent with varying cultural norms can have a profound impact on areas as diverse as involvement of fathers in care giving, warmth from and control of mothers, and the role older children play in their younger siblings' care (Whiting & Edwards, 1988).

The effects of culture have a wider reach than simply upon parenting practices. Norms regarding *individualization*, which stresses each individual's achievement and competition among members, versus *collectivist* societies, which focus on the interdependence of those living within a given culture and are less approving of competitiveness, impact many aspects of a child's development. Given the wide-reaching effects of a person's culture on their development, some psychologists, such as Barbara Rogoff, have argued that individual development is inseparable from community (Rogoff, 2003). We explore more about the importance of understanding the role of culture in Research Example 1.1.

Research Example 1.1

A typical developmental study takes place in industrialized, western societies with white, middle-class children. Are these studies likely to apply to children everywhere? Psychologists interested in cultural, economic and geographical influences upon human development are concerned with this very question. And indeed, much research indicates that cultural effects should be taken into account when understanding the social, cognitive and physical developmental processes of a child within a given environment. As we identify below, one developmental principle may not apply to all cultures, and sometimes important differences between collectivist versus individualized nations will need to be considered.

A recent investigation of cultural differences in the impact of parental control on adolescents' psychological functioning found evidence for the importance of considering culture when applying psychological principles to children's development. Parental control is defined as behaviours through which parents excessively control and regulate their children's activities and routines, encourage children's dependence on them as parents, and instruct the children on how to think and feel. High parental control is believed to induce helplessness and generate anxiety and depression in children. However, the effects may be culturally specific. Parental control may be used in collectivist cultures, including many parts of Asia, to maintain harmony in the family, and may be perceived by children as an expression of care and concern, rather than of harshness, as may be the case in more individualized nations.

A research team from Israel and Saudi Arabia recruited 2,884 Arab, Indian, French, Polish and Argentinean adolescents to report on their mothers' and fathers' use of parental control during a conflict, ranging from a score of 5 ('controlling/punishing') to 1 ('accepting/forgiving') (Dwairy & Achoui, 2010). Results revealed that parental control differs across cultures, such that parental control was higher in the eastern than western countries (parents in both France and Argentina applied lower control than all

(Continued)

other countries). Mothers were reported as more controlling than fathers in most cultures, although there was no clear relationship between maternal control and adolescent psychological health in any of the countries. However, the role of fathers showed an interesting cultural interaction; paternal control was associated with adolescent psychological maladjustment in the West, but not in the East. The authors explained the findings in terms of an inconsistency hypothesis, such that parental control does not cause harm to children in authoritarian/collective societies as control in such societies is consistent with the wider culture in which the children live. However, paternal control in the West is inconsistent with the culture's more liberal climate of independence, and may thus be perceived by children as harsh and result in psychological distress in children.

Questions: Are there any other explanations, apart from the inconsistency hypothesis, that might explain the differential impact of control within cultures?

Can you think of reasons why maternal control strategies were not consistently related to child maladjustment as was paternal control?

Important information was missing from the study, including adolescent age and how psychological disorders were assessed. Can you think of how our interpretation of the study conclusions may be impacted by not knowing this information?

Chronological age in developmental psychology

The variable which is most often studied in developmental psychology is *age*. **Chronological age**, the time which has elapsed since a person's birth, is found in many developmental studies. Chronological age is commonly examined in developmental research because performance on any given task strongly co-varies with age. For example, in the study of child development we find more often than not that older children perform at a higher level than younger children on a given task, or that older children use immature strategies less often than do younger children. However, what do age effects mean to us? Are we any better off for knowing that older children score better on a test than younger children?

It is very important to recognize that chronological age does not *cause* development, but simply *reflects* the fact that we have existed for a certain amount of time. In other words, age is a *proxy variable* (Hartmann & George, 1999). By 'proxy variable', we mean that chronological age stands in for other developmental processes we have not measured. When we find a difference between age groups on some variable, all we can say is that there is a performance difference between age groups – what causes the difference is not known unless specific measures are included. Age differences are only a small part of what developmental psychologists examine. The real interest for developmental psychologists lies in examining the mechanisms that cause developmental change and, thus, performance differences between age groups.

Themes and Issues in Developmental Psychology

A number of major themes have emerged in the study of child development, themes which are recurrent across the various domains of study. For example, the debate over whether development is best characterized as driven by biological or environmental factors has guided study within areas as diverse as emotional, social and cognitive development. The same is true for each of the other major themes which we will examine. After you have become familiar with each of the issues described below, you should think about these themes as you read through the following chapters. You should be able to identify where these themes occur when studying the areas of development discussed in the last seven chapters.

Continuity and discontinuity

An important question which continually confronts the researcher in the study of child development is how to best characterize the nature of developmental change. There are two contrasting positions on developmental change. According to those who hold the first position, development is best viewed as a *continuous* process. That is, development is conceived as a process of gradual accumulation of a behaviour, skill or knowledge. In this model, development proceeds in a smooth and orderly fashion, with each change building on previous abilities. In contrast to this perspective, those who hold the second view would suggest that developmental change is best characterized as *discontinuous* in nature. These theorists suggest that behaviours or skills often change qualitatively across time, and that new organizations of behaviours, skills or knowledge emerge in a rather abrupt or discrete fashion. The notion of a **stage** of development is central to discontinuous views of development. A stage of development can be thought of as a particular organization of a child's knowledge and behaviour that characterizes their development at a particular point in time. The movement to a new stage of development means that a qualitative reorganization of previous knowledge or behaviour has taken place. For example, Piaget (1952) believed that between 7 and 11 years of age children's thinking could be described as concrete, in that it is closely tied to the nature of the objects with which they interact. In contrast, during adolescence, thinking becomes more abstract: it is less bound to particular objects and takes into account the possible or hypothetical. It should be clear that these two positions – development viewed as a continuous process or as a discontinuous process – describe development in quite different ways, ways that on the surface are seemingly difficult to reconcile with one another.

Siegler (1998, 2000) has argued that whether a particular aspect of development appears to be continuous or discontinuous in nature depends largely on how we choose to examine development. When we examine the change in a given behaviour at large intervals (e.g. yearly), or in different age groups such as 4 year-olds and 8 year-olds, development will tend to look very discontinuous or stage-like. If we plotted the level of development of some skill over time, the

developmental function might look like a staircase, with periods of little change followed by abrupt shifts in the level of performance. In contrast, if we were to examine the behaviour more closely, at smaller intervals, we might find that development took on a much more continuous character. That is, increases in the level of performance would be seen to occur gradually with no abrupt shifts. We would also find that there is great variability in the methods or strategies that children use to solve problems. Siegler's (1998) work on children's learning in the domain of mathematics showed that children often use a variety of strategies in their attempts to learn how to add together two numbers. Because learning to decide which strategies work best takes some time, the shifts between using different strategies are a gradual process. If we plotted the development of strategy use for addition problems, Siegler claims we would obtain a picture quite different from the staircase model described above. Instead, we would see what he calls 'overlapping waves' of development. The waves occur as the variability in strategy use gradually peaks and declines while the overlap between the waves reflects the fact that children use multiple strategies at the same time. Therefore, how we look at development in time has a great deal to do with the picture we obtain.

Sternberg and Okagaki (1989) have suggested that the attempt to characterize development as uniformly continuous or discontinuous has the appearance of an unanswerable question, being based on a false presupposition. Instead, they argue that a better question to ask is 'what are the sources of continuity and discontinuity in development?' In their view, 'either/or' debates are misleading: development has both discontinuous and continuous aspects, and the real question for developmental psychologists is to find out how these differing aspects arise in the course of development.

Stability and change

Another issue which is of importance to developmental psychologists is the issue of **stability versus change**. Simply put, we can ask whether development is best characterized by stability (for example, does a behaviour or trait such as *shyness* stay stable in its expression over time?) or change (could a person's degree of shyness fluctuate across the life span?). Studies of children have often revealed impressive stability over time in aspects of development such as the attachment bond to their parents (e.g. Sroufe, Egeland, & Kreutzer, 1990) or in personality (Caspi & Silva, 1995). Of course, there is evidence which suggests a contrary view, that change is both possible and indeed likely under the appropriate conditions. For example, research on children's temperament (e.g. Thomas & Chess, 1977) raises the possibility that inherited predispositions to react emotionally in certain ways can be altered by their environment, and particularly by the attitudes and behaviours of caregivers. An important aspect of the debate on stability versus change has to do with the degree to which early experiences play a formative role in later development. Freud was one of the first psychologists to emphasize the critical nature of our early experiences for our later development. In his view, how we resolve our sexual and aggressive urges is strongly tied to the nature of our personality as adults. Similarly, Erik Erikson (1963) believed that how we dealt with key issues, such as the development of a

warm, caring relationship with our parents or the ability to think and act autonomously, were important determinants of later developments (although, unlike Freud, Erikson made a greater allowance for the different contexts in which children develop). These early theories of human development as well as a great deal of later research suggest that there is a highly stable quality to our development and that our early experience is crucial to this stability. In contrast

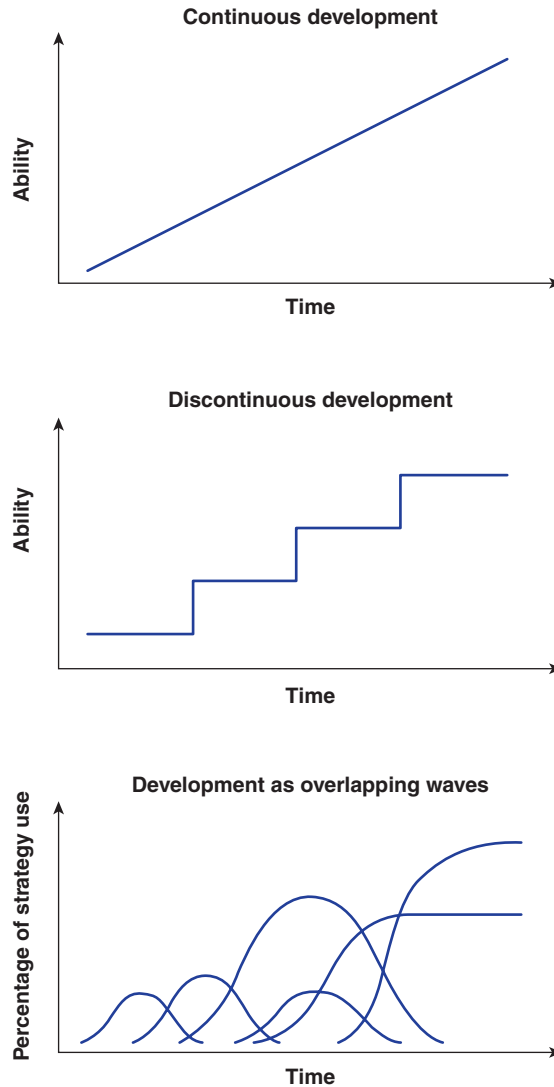


Figure 1.1 Models of developmental change

to this position, researchers who have focused on adult development, such as Baltes (1987), have emphasized that we are malleable throughout the life span and that later experiences are very important to whether development shows stability or plasticity. Baltes argued that too little attention had been focused on those aspects of development which support change, and proposed a methodology for the study of behaviour across the life span which would test the potential for change in behaviour.

A series of studies examining the effects of early experience on children's social, physical and cognitive development was conducted by British psychiatrist Sir Michael Rutter. Rutter (1998) looked at the psychological and physical development of Romanian orphans who had been adopted into British families after the fall of the Ceausescu regime in Romania. The children had been reared in extremely poor conditions in their native country. As a result, a large proportion showed severe problems, including intellectual disability, growth deficiencies and major health problems. Institution records provided data on how long and at what age the children had been placed in an institution. As a result, Rutter et al. were able to examine whether the degree of children's recovery from these early experiences was affected by how long they had been institutionalized. (See Research Example 1.2 for a further discussion of how early deprivation can effect development.)

Research Example 1.2

The Story of the Romanian Orphans

The infants were assessed on their arrival into the United Kingdom (UK) and again a few years after their arrival. A control group of children adopted within the UK was also included for comparison purposes. At the time of their entry into the UK, the Romanian adoptees were very poorly off when compared to developmental norms for children in the UK. They showed deficits on height and weight (more than two standard deviations below the mean) and their cognitive scores indicated that they had scored in the mildly retarded range. When the adoptees were compared among themselves in regard to the length of their institutionalization, a number of important differences emerged. The few adopted children who had been raised mainly in a family environment (experiencing less than two weeks of institutional care) were markedly better off in terms of their physical and cognitive development scores than peers who had spent much longer periods in institutional care. Given the significant deficits in both physical and cognitive development observed in this group, you might reasonably infer that their future prospects were poor.

The long-term follow-up of these children revealed mixed findings. When the Romanian adoptees at age 6 were compared to the control group of children adopted within the UK, a high level of

catch-up growth was observed. Catch-up growth refers to the tendency to rapid recovery with the establishment of normal environmental conditions (as opposed to the privation which caused the initial deficit). In comparison to the control group, the Romanian adoptees showed substantial catch-up growth, attaining similar levels of height, weight and head circumference (although the Romanian adoptees were still on average slightly smaller than the control group). The findings in regard to cognitive growth were similarly impressive. Infants were placed in adoptive families before the age of 6 months similarly to the control group on cognitive measures. Infants placed in families after 6 to 24 months of institutional care showed significant differences in comparison to the control group: the Romanian adoptees scored significantly lower on the cognitive measure, although the mean score was well within the normal range for children of their age. The researchers highlighted the possibility that catch-up growth was not yet complete in this group of children.

However, recent work by the English and Romanian Adoptees Study Team has revealed that the future for some of the children involved may not be so bright. Studies examining a range of functioning at age 11 showed that cognitive functioning and attachment security might still be compromised in these children, and only limited catch-up growth was observed (Beckett, Maughan, Rutter, Castle, Colvert et al., 2006). Analysis of the individual progress of children revealed a great deal of variation: one-fifth of children who spent the longest time in the deprived environment showed normal functioning later (Rutter & the ERA Study Team, 2001), while others did not fare so well and continued to show difficulties. Still other children who showed improvement at age 6 slipped in this growth at age 11. A variety of outcomes were therefore possible for these children.

In short, the results of the studies suggested that, while early experiences can be associated with negative child outcomes, recovery of functioning is still possible. Children's early experiences are not necessarily associated with long-term consequences, but the prognosis for many children may still be poor. These findings showed that children's development can be characterized by both constancy and change. Further research will hopefully identify which factors make this change in deprivation possible.

Maturation versus experience in development: the nature–nurture debate

Of all of the issues which have aroused debate within the study of child development and developmental psychology, the *nature versus nurture issue* has generated the most controversy by far. This may be due to the fact that unlike the other debates we have discussed, the nature–nurture question (as it is often called) focuses on the best explanation for how development takes place. The issue is usually posed as a debate between two positions regarding the relative roles of biological and environmental factors in development. **Nature** refers to the position that our genetic inheritance, through the process of heredity, is the primary influence

on development. In contrast, **nurture** refers to the position that the environment (broadly construed as children's experiences, including parenting, education, learning, cultural influences) is primarily responsible for development.

In developmental psychology's past, extreme positions have been taken on the nature–nurture debate. Arnold Gesell (1928) was a strong advocate of the position that the course of our development was largely dictated by genetic factors. Our genetic heritage specifies the set of biological processes which determine the patterns of growth that we observe, which Gesell referred to as *maturation*. Simply put, maturation is the sequence of growth which is specified and controlled by our genes. Gesell used studies of identical twins to study how experience and maturation lead to development (see Chapter 4). His studies compared twins' speed in learning new skills. One twin was given special experience to assist with learning a particular skill while the other twin was given no such experience. Gesell's findings consistently showed that the acquisition of these behaviours was relatively unaffected by the special training, that is, the untrained twin tended to acquire the behaviour as quickly as the trained twin.

In contrast to Gesell's maturationist position, John B. Watson (1928) argued for the dominance of the environment in children's development. Watson believed that genetic factors placed no limits on how environments could shape the course of children's development. Watson was famous for his boast that, given the ability to manipulate the environment to his own standards, he could shape the development of any child: 'Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in, and I'll guarantee to take any one at random and train him to become any type of specialist I might select – doctor, lawyer, artist, merchant-chief, and yes, even beggar-man and thief, regardless of his talents, penchants, tendencies, abilities, vocations, and race of his ancestors' (Watson, 1930: 104). While Watson was never able to make good on his boast, he did show how environmental experiences played a role in shaping children's behaviour through the processes of **classical conditioning**, a type of learning in which a stimulus can come to evoke a response after the repeated pairing of the two stimuli (Watson, 1928).

The positions held by Gesell and Watson regarding the relative roles of maturation and environment on development are essentially extremist positions which are no longer supported in light of current research on child development. Today, most developmental psychologists recognize that nature and nurture both play an important role in development. Rather than discussing nature *versus* nurture, we commonly talk about the interaction between nature *and* nurture. This interactionist view is increasingly held by more than developmental psychologists as the public also recognize the importance of environment and genetics. Research has found that over 90% of teachers and parents accept that nature and nurture are equally necessary for understanding children's behaviour and cognition (Plomin & Walker, 2003). Given the widespread recognition that both nature and nurture play crucial roles in shaping development, the challenge which lies before us today is to examine the interplay between biological and environmental factors, figuring out how they interact to produce developmental change.

The interaction between nature and nurture, of which the new field of epigenetics takes centre stage in current research (we will take this up in greater detail in Chapter 4), has been characterized as being less of an answer to the nature–nurture debate and more a starting point for the study of development (Elman, Bates, Johnson, Karmiloff-Smith, Parisi, & Plunkett 1996). Recent research provides us with more explicit information about the interplay between nature and nurture. Plomin and colleagues (Plomin, DeFries, Craig, & McGuffin, 2001) have shown that children with certain genetic predispositions are more likely to develop problem behaviour. When these children live in abusive environments, they are more likely to be maltreated than children without such difficulties. For abuse to result, a violent environment clearly interacts with children’s inherited qualities. Similarly, adoption studies have shown that environmental stress, such as parental separation, is only likely to have a negative effect on children when it is coupled with a genetic risk in children (O’Connor & the ERA Study Team, 2003). Interestingly, recent research has revealed that some genetic ‘risks’ can result in future positive outcomes when interacting with advantageous environmental factors. Thus, when children who are prone to a high level of negative emotion are raised in harsh environments, they do indeed appear to be at greater risk of developing problems than children with a naturally more easy-going temperament; however, these very same children, when raised in a warm, supportive environment, often surpass their easier-going peers on a number of indicators (Belsky & Pluess, 2009). This notion of *differential susceptibility* will be raised further in Chapter 13.

Another way we can approach the interaction between nature and nurture is by examining the extent to which our biological programming can be altered by environmental influences (Dellarosa Cummins & Cummins, 1999; Elman et al., 1996). The biologist C. H. Waddington (1975) used the term **canalization** to refer to this phenomenon. In other words, is the genetic influence on a particular development robust across varied environments or is it susceptible to change? Highly canalized behaviours are relatively unaltered by changes in the environment. For example, the tendency to acquire a language is a highly canalized development in that it occurs across a wide degree of environmental variation. In contrast, some behaviours are easily modified by environmental factors and are less canalized. Intelligence is a trait which is dramatically altered by environmental variations (e.g. Bronfenbrenner & Crouter, 1983). For example, it is well documented that children who grow up in enriched environments tend to show higher levels of achievement than children growing up in impoverished environments. Studying the relative canalization of different developments has the potential to shed light on the nature of epigenesis.

Our biology is continuously influenced by our environment and our behaviour. At the same time, our experience of our environment is continuously influenced by our biological inheritance. For example, children frequently seek out peers and environments that are suited to their predispositions (Kuczynski, 2003). Trying to divide the causes of behaviour into parts assignable to nature and nurture is futile – nature and nurture are engaged in a continuous, reciprocal interaction. The attempt to separate their influences, as has been done in the past, leads to an over-simplified and incomplete picture of human development.