

The Principles of Developmental Psychology

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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 aware of the evidence relevant to both sides of these issues

Introduction

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). 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 entire 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, 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 narrower portion of the life span, specifically, on the time development between conception and adolescence. This area of study is known as the study of **child development**. The study of children is obviously

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

What is ‘development’?

When we speak of **development**, to what, in fact are we referring? One frequently used definition refers to development 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), the baby who learns to successfully reach for objects has learned to coordinate a variety of skills such as maintaining an upright posture, moving the arm, visually coordinating the position of the 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 require 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.

Principles of life-span development

Paul Baltes (1987) has articulated a set of principles which guide the study of human development within a life-span framework. Baltes argues 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. In this book, although we focus on development in children, we will take a life-span approach to the study of development.

The first of the principles which Baltes (1987) discussed is the belief that *development is lifelong*. 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 of development is the belief 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. A key part of the research agendas 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 suggests 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.

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 influences 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 a historical time period. Moreover, the influence of these events often does not follow a typical developmental course. Being struck 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.

Chronological age in developmental psychology

The variable which is most often studied in developmental psychology is *age*. **Chronological age**, the time that 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

covaries 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 lies in examining what mechanisms 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 become familiar with each of the issues described here, you should think about these themes as you read Chapters 4 through 10. 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 to the first position, development is best viewed as a **continuous** process. That is, development is conceived of as a process of the gradual accumulation of a behaviour, skill, or knowledge. On this model, development proceeds in a smooth and orderly fashion, with each change building on previous abilities. In contrast, those who hold to 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 the 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 to 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) 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) own work on children's learning in the domain of mathematics shows 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 the use of different strategies is 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 just described. 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. Thus, how we look at development in time has a great deal to do with the picture we obtain. (See Figure 1.1 for an overview of these three models.)

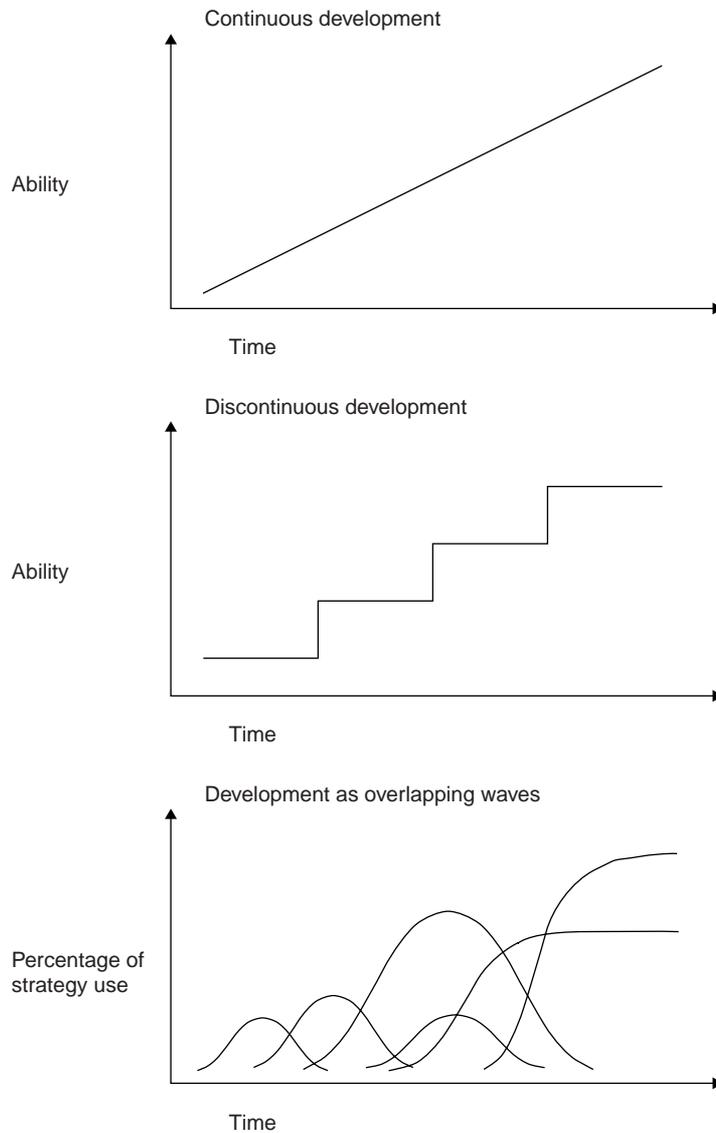


FIGURE 1.1 Models of developmental change

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, Sternberg and Okagaki suggest 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, is likely under the appropriate conditions. For example, research on children's temperament (e.g., Thomas & Chess, 1977) raises the possibility that our inherited predispositions to react emotionally in certain ways can be altered by our environment, particularly by the attitudes and behaviours of their 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 our later development. Freud was one of the first psychologists to emphasize the critical nature of our early experiences for our later development. In Freud's 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 early experience is crucial to this stability. In contrast 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 has argued that too little attention has been focused on the aspects of development that support change, and has proposed a methodology for the study of behaviour across the life span which tests the potential for change in behaviour.

One study that has examined the effects of early experience on children's social, physical and cognitive development was conducted by British psychiatrist Sir Michael Rutter and his colleagues. Rutter (Rutter, and the

English and Romanian Adopter Study Team, 1998) examined the psychological and physical development of Romanian orphans who were adopted into British families after the fall of the Ceaucescu regime in Romania. These Romanian orphans were reared in extremely poor conditions in their native country. As a result, a large proportion of these children showed severe problems including mental retardation, growth deficiencies, and major health problems. The records of the institutions provided data on how long and at what age they had been placed into the 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.

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. The Romanian adoptees showed deficits on height and weight (more than two standard deviations below the mean) and their cognitive scores indicated that they 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 were 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 their peers who 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.

However, the long-term follow up of these children revealed a rather different picture. When the Romanian adoptees 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 who were placed in adoptive families before the age of 6 months scored no differently on the cognitive measures than the control group. For those infants placed in families after having between 6 to 24 months of institutional care, there were 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. Rutter et al. highlight the possibility that catch-up growth is not yet complete in this group of children.

The authors also note that, although the degree of recovery of the adopted children was very high, it is too early to tell whether there will be other long-term effects associated with their early environment. Further follow-up research is required. In short, the findings of this study suggest that, while early experiences are clearly associated with negative child outcomes, recovery of functioning is very possible. Thus, children's early experiences are not necessarily associated with long-term consequences as some researchers have suggested.

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 question of 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 given special experience learning a particular skill to the other twin who was given no such experience. Gesell's findings consistently showed that the acquisition of the 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 on 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. Given the widespread recognition that both nature and nurture play crucial roles in shaping development, the challenge which lies before us now 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, referred to as **epigenesis**, has been characterized as being less of an answer to the nature–nurture debate than as a starting point for the study of development (Elman, Bates, Johnson, Karmiloff-Smith, Parisi & Plunkett, 1996). Elman et al. (1996) point out that the interactionist position is certainly the correct position to take on the nature–nurture debate. However, they argue that future research needs to specify exactly how nature and nurture interact to produce development if an interactionist position is to be anything other than 'lip service' to the debate.

One way we can approach the interaction between nature and nurture is through an examination of 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 does it show susceptibility 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, our behaviour, and our activity. At the same time, our experience of our environment is continuously influenced by our biological inheritance. Trying to divide the causes of behaviour into parts assignable to nature and parts assignable to nurture is futile; nature and nurture are engaged in a continuous and reciprocal interaction. The attempt to separate their influences as has been done in the past leads to an oversimplified and incomplete picture of human development.

The structure of the book

One of the goals in writing this book is to provide you with a brief but reasonably comprehensive survey of some of the key issues in the field of child development. This first chapter was 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, highlighting the principles which guide the study of development from a life span approach, and introducing you to some important concepts and key issues within the contemporary study of child development. Hopefully by this point, you will understand what you are getting yourself into by pursuing this text. Thus, this would seem a good time to discuss what topics are covered in the remaining chapters.

In Chapter 2, we will survey a number of theories that are relevant to the study of child development. Some of these theories are more important from a historical perspective, whereas others are theories that are relatively recent statements which are gaining increasing attention from developmental psychologists as important ways for conceptualizing developmental issues. Chapter 2 also takes up the question of what theories are and what role they play in the study of psychology. Chapter 3 follows up on Chapter 2 by addressing the issues surrounding how developmental psychologists actually go about the business of conducting research on children's development. In Chapter 3, we take up issues involving ways of obtaining information from children, the various types of research designs employed by developmental psychologists, and specific methods for examining change over time.

In the remaining chapters, we survey a number of the most important areas in child development. This survey is by no means a complete one; there are a great many other topics which could have been addressed. Recall our discussion of developmental psychology as an *approach* one takes to a particular area. Based on this, you'll recognize that this text could be as broad as the field of psychology itself. However, the decision regarding which areas to include was not made lightly, and it is safe to say that most of the critical areas in child development are discussed in this text. While you may find some area in which you are particularly interested was missed entirely or touched on only briefly, this book should hopefully provide you with a solid foundation on which to build a more in-depth understanding of the issues which capture your imagination as a student of psychology.

In Chapter 4 we examine the biological foundations of development, that is, the patterns of physical growth, motor development, and the structure of the human brain. In many areas of child development, knowledge of these biological structures and the patterns of change they undergo is critical to developing a deeper understanding of seemingly unrelated topics, from children's memory development to their sexual identity. We finish Chapter 4 by dealing with the influence of hereditary influences on child development through the study of genes and their effects on behaviour.

Chapter 5 covers the development of perceptual abilities by looking at change in each of the five senses from birth through to early childhood and sometimes beyond. In contrast to early conceptualizations of the infant's experience of the world as a 'blooming, buzzing confusion' we see that infants are born with a remarkable ability to make sense of their world which develops extremely rapidly over the first few months of life. Chapter 6 takes up the study of cognitive development, that is, the child's ability to think and reason about the world. Instead of covering specific topics such as the growth of memory or problem-solving ability, we look at three very different and critically important theoretical frameworks for the study of cognitive development. A solid understanding of the theories covered in Chapter 6 will provide you with a strong foundation on which to build a further understanding of human cognition, whether in children or adults. Given the centrality of the study of cognition to an understanding of human behaviour, the hope is that this approach will prove helpful to you in your study of psychology or of the many other disciplines where an understanding of human cognition is important (e.g., economics, consumer behaviour, or linguistics).

Chapter 7 provides an introduction to the study of language development. Language is a behaviour which children acquire very rapidly, as you will undoubtedly have observed for yourself or heard about from your own parents. As we will see, the process of language acquisition begins early in infancy and is well underway before children use their first words.

Chapter 8 takes up the study of emotional development. After a brief consideration of the seemingly simple question ‘what are emotions?’, we look at some of the most important issues in this area including the course of emotional development (e.g., from the first facial expressions to the ability to experience simultaneous and conflicting emotions), how we learn to control our emotions, the emotional bond between caregivers and children, and finally, the concept of *temperament*, what many psychologists think of as our ‘emotional nature’.

In Chapter 9, the concept of social development is introduced. As you will learn, the study of social development includes elements of cognition, language, and emotional development, which explains why this chapter follows these others. Chapter 9 introduces you to diverse topics such as the growth of social relations, the nature and functions of play, how conceptions of friendship change with age, the importance of being accepted by one’s peers, and the development of an understanding of the important role of *minds* in social behaviour.

Finally, we address the issue of psychopathology from a developmental perspective. In Chapter 10, we examine the tenets of the *developmental psychopathology* approach, discuss the measurement of psychopathology, look at some common disorders of childhood (e.g., depression, anxiety, autism, and conduct disorder), the issues of *risk* and *resiliency*, and finally, issues surrounding the prevention and treatment of psychopathology in childhood.

How to use this book

By this point, you will likely have noticed that throughout this chapter, some words have appeared in **bold** type. Words that appear in bold 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 the definition through carefully and recast it in your own words. It is also very helpful to associate new terms with examples from the text so that you can illustrate the meaning in a more concrete fashion. Finally, each chapter contains a glossary – a list of these important concepts which should allow you to look up terms quickly and easily.

I have purposefully tried to make this a readable text. Hopefully you will find it easy to read and pitched at the right level for a student being introduced to the topic for the first time. Unlike many other texts, this book does not use many illustrations to make the points that I feel are important to get across to the student of child development. Instead, my hope is that you will feel as excited about this field as I do, and that, as a result, you will be motivated to read, reflect on, and think through the material contained in these chapters and use it as the foundation for developing a greater knowledge of theory and research in the contemporary study of child development.

Glossary

Canalization refer to the extent to which our biological programming can be altered by environmental influences.

Catch-up growth refers to the tendency to the rapid recovery of physical growth (after a period of deprivation) with the establishment of normal environmental conditions.

Child development is the study of development between conception and adolescence.

Chronological age is the time which has elapsed since an individual's birth.

Classical conditioning is a type of learning in which a new stimulus can come to evoke a familiar response after the repeated pairing of the new stimulus with a stimulus which already evokes the response.

Continuous refers to the idea that developmental change can be characterized as a process of gradual change, progressing in a smooth and orderly fashion.

Development refers to patterns of change over time which begin at conception and continue throughout the life span.

Differentiation refers to the idea that development involves the progressive ability to make more distinctions among stimuli, concepts or behaviours.

Discontinuous refers to the idea that developmental change is best characterized as occurring in an abrupt and discrete fashion, rather than in a gradual, orderly fashion. The idea that development occurs in stages is central to the discontinuous view.

Epigenesis refers to the interaction between nature and nurture.

Integration refers to the idea that development consists of the integration of more basic, previously acquired behaviours into new, higher level structures.

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.

Maturation is a sequence of growth which is specified and controlled by our genes.

Nature refers to the position on the *nature–nurture issue* that our genetic inheritance is the primary influence on development.

Nature versus nurture refers to the debate regarding the relative roles of biology and experience in human development. 'Nature' refers to the biological factors and 'nurture' to environmental factors.

Normative age-graded influences are the biological and environmental influences that are similar for individuals in a particular age group.

Normative history-graded influences are the biological and environmental influences associated with historical periods in time and which influence people of a particular generation.

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 a particular historical time period.

Nurture refers to the position on the *nature–nurture issue* that the environment is primarily responsible for developmental outcomes.

Stability versus change is the debate over whether a particular trait or behaviour is best characterized by stability over time or by change.

Stage a particular organization of knowledge and behaviour that can be used to characterize a child's level of development at a particular point in time.