Theories of Development

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LEARNING AIMS

At the end of this chapter you should:

- be able to explain the importance and function of theories
- be aware of and able to explain the essence of each of the theoretical positions covered
- be able to define and give examples of the key concepts associated with each of the theoretical positions covered

What is a theory?

A theory is an interconnected, logical system of concepts that provides a framework for organizing and understanding observations. The function of a theory is to allow us to understand and predict the behaviour of some aspect of the world (e.g., the tendency of an object to slide down an inclined plane or the ability to infer the feelings of a friend from their behaviour). Theories can be either formal or informal; what differentiates formal from informal theories is how explicit the concepts which make up the theory are made. Formal theories take the form of an interconnected set of hypotheses, definitions, axioms, and laws, each of which is an explicit concept which fits with or can be deduced from the overall theory (Miller, 1993). Formal theories can be expressed in a variety of ways: using ordinary language; in mathematical form; or sometimes in the form of logical principles. Ideally, a formal theory should be logically consistent and contain no contradictions, fit well with empirical observations (rather than be contradicted by them), be testable, be as simple as possible, and should cover a reasonable range of phenomena (Millet, 1993). In contrast, informal theories take a less rigorous form than formal theories; they are often little more than organized sets of intuitions or expectations about our world (these informal theories are often referred to as implicit theories). In developmental psychology, we have no formal theories of human development (Miller, 1993), although most theories of child development are somewhat more developed than the intuitive expectations about human behaviour that we all hold. However, we can
evaluate developmental theories in terms of how likely they are to develop into formal theories using the criteria for a formal theory.

A good theory must state the range of phenomena it is trying to explain. For example, a theory of intellectual development may include hypotheses about the evolution of the brain, or the growth of symbolic abilities, but we would not expect the theory to explain changes in motor ability. Understanding the focus of a theory helps us identify its **range of applicability**, that is, the range of phenomena to which it properly applies. We must also know what **assumptions** a theory is based on. Assumptions are the guiding premises underlying the logic of a theory. For example, evolutionary psychologists take for granted the assumption that natural selection is the only process which can produce changes in physical structures of an organism over time. In order to properly evaluate a theory, you must first understand what its assumptions are. This is because the assumptions of a theory may be questionable or even incorrect. Assumptions may be influenced by cultural contexts and belief systems, by the sample the researcher was observing, or by the current knowledge base of the field.

Now that we know what a theory is, we can ask ‘what do theories do?’ First, theories are constructed to organize and interpret our observations of the world and to help us identify orderly relationships among many diverse events. They help us to distinguish factors which are central to understanding a behaviour from factors which are only related in a peripheral way. Our theories give meaning to the facts we discover about the world, serving as a framework within which to interpret facts and integrate new information with previously acquired knowledge. Second, theories guide the acquisition of new knowledge. The statement of a theory should make specific predictions which can be tested. Theories can also cause us to reinterpret knowledge which we have previously acquired; that is, the formulation of a theory may require us to look more carefully at factors we had previously taken for granted or ignored. For more on the role of theories in the study of psychology, see Haslam and McGarty (1998).

According to Miller (1993), theories of human development differ from other theories in a particular way. The critical aspect of developmental theories is a focus on change over time in some particular behaviour or domain of functioning. Miller further argues that any developmental theory should manage three tasks. First, it needs to describe change within a given domain or domains. For example, if one is proposing a theory of emotional development, a good theory would describe what the development of emotion looks like: are there particular emotional states which proceed or follow others? Do we come endowed with any emotional expressions and, if so, how do these change or remain stable with development? Second, it needs to describe changes in the relationships between domains. For example, do
changes in cognitive functioning give rise to changes in social or emotional functioning? Third, it should explain how the changes in behaviour that have been described take place; that is, what accounts for the transitions between different states of development? Are the observed changes a function of maturation, learning, or an interaction of both? A developmental theory needs a clear description of the mechanisms which guide change.

Now that we have considered what a theory is and what it should provide, let us next examine a selection of theories which are currently used or have previously been important to the study of child development.

Theories of human development

In this section, we review a number of the most important theories of child development. Some theories such as Freud’s psychosexual theory of development are discussed not because they are currently important to the field of child development, but for their historical value to the discipline. Other theories are discussed because of their current importance to the field.

While there are a large number of theories of human development, the search for underlying commonalities across these theories has revealed that all developmental theories can be classified as based on at least one of two philosophical models (Dixon & Lerner, 1999): organicism and mechanism. These models detail the assumptions about the nature of human development that underlie the various theories which we will review here. Models based on organicism stress the qualitative features of developmental change and emphasize the organism’s role in bringing about these changes; that is, organicism focuses on developmental change which is a reorganization based on previous forms and is not simply a change in the quantity of a given behaviour. In contrast, mechanistic theories stress quantitative changes in behaviour and emphasize that factors outside the control of the organism play the major role in developmental change. Of course, not all theories of development are based exclusively on one model; some theories have adopted elements of both mechanism and organicism to explain human development. As we review each of the theories, see if you can classify the theories discussed in terms of whether they subscribe to organicism, mechanism, or some combination of the two positions.

Psychodynamic theory

Modern psychodynamic theories of human behaviour and development have their roots in the thinking of Sigmund Freud (1856–1939). While there are few psychologists who are strict adherents to Freudian theory (which we discuss later), psychodynamic theories continue to influence many theorists.
At their heart, psychodynamic theories emphasize the belief that forces or dynamics within the individual are responsible for our behaviour. In general, psychodynamic theories (although Erikson’s work is an exception) are more influential in therapeutic contexts than they are in developmental theory. However, as Dixon and Lerner (1999) suggest, psychodynamic theories have exerted an influence on developmental theory, thus it would be unwise to ignore them.

In his theory of human personality, Freud stressed the formative nature of early experience and of biologically based drives; his belief was that development is the result of a balance being struck between unconscious drives and a conscious need to adapt one’s self to the reality in which we find ourselves. Freud (1917) believed that our personality is made up of three structures: the id, the ego, and the superego. The id is the part of our personality which is made up of instinctual drives. The id operates according to what Freud termed the pleasure principle; that is, the id is directed towards maximizing its pleasure in an immediate fashion. Freud believed that the id dominated an infant’s behaviour. As we develop and our instincts come into conflict with reality, the ego emerges. The ego works to satisfy our drives but does so in a socially acceptable manner; it attempts to gratify our needs through constructive and socially appropriate methods. For example, the ego redirects aggressive urges such as a desire to lash out physically at another into more socially acceptable forms such as verbal aggression or vigorous physical play. As the ego operates in this fashion, we begin to internalize the values of our parents and the wider society around us, forming the structure that Freud called the superego. During the preschool years, children accept their parents’ values and take these on in the form of their conscience as they apply these standards to their own behaviour. The ego now takes on the role of arbitrating between the id and the superego in an attempt to satisfy both sets of demands. According to Freud, the dynamics of this struggle, occurring during early childhood, sets the stage for our adult personality.

In Freud’s view, development is a discontinuous process. Freud postulated five stages of development in his theory of psychosexual development: the oral, anal, phallic, latency, and genital stages. Each stage revolves around the movement of sexual impulses from one erogenous zone to the next. In the first year and a half of life, during the oral stage of development, the infant’s pleasure is centred around the mouth and involves behaviours such as biting, chewing, and sucking as the sources of pleasure. The behaviours infants engage in change during the second year as they enter the anal stage and their pleasure becomes centred around the eliminative function. A potential source of conflict during this stage is the child’s desire to immediately expel faeces coming up against their parents’ attempts to train the child into waiting to use the toilet. The phallic stage, which occurs from about the ages of three to six
years is centred around the genitals and the discovery that their own genitalia provide them with a sense of pleasure. During the phallic stage, Freud believed that children must cope with a sexual attraction to the opposite sex parent which must eventually be relinquished and replaced by an identification with the same sex parent. This process of identification leads to the latency stage, which lasts until puberty, during which the child suppresses sexual drives and instead focuses on developing social and intellectual skills. Finally, during the genital stage which occurs during puberty, the sexual desires reawaken and the adolescent looks for appropriate peers (instead of family) to which to direct their sexual drives.

Freud’s theory was influential in that it focused developmentalists’ attention on the role of early experiences in personality formation. It also emphasized a view of development as shaped by the dynamics of the conflict between the individual’s biological drives and society’s restrictions on the expression of these drives, which many subsequent theorists (such as Erik Erikson) found inspiring. Finally, Freud’s theory, notwithstanding the many negative assessments it has faced, has been a rich source of hypotheses about development (Miller, 1993). Despite all of these benefits, Freud’s theory has been heavily criticized. Freud focused largely on males (as exemplified by his labelling the second phase of development ‘phallic’), and neglected to examine issues which might be important to the development of females. In addition, Freud’s theory relied mainly on the use of methods such as free association, and the use of dream analysis, which make scientific tests of his theory difficult, if not impossible. Most tellingly, when Freud’s claims have been put to the test, many of the most significant claims have not been supported by empirical tests. Thus, Freud’s views do not stand up well to modern psychology’s demand for scientific validation.

Psychoanalytic theory has been revised significantly and has spawned many offshoots or schools of thought such as object relations theory. Modern psychoanalysts emphasize the role of unconscious processes in our behaviour, but place less emphasis on sexual and aggressive instincts and spend more effort highlighting the importance of experience and an understanding of one’s life history.

**Psychosocial theory**

In contrast to Freud’s emphasis on sexual and aggressive drives, Erik Erikson (1902–1990) proposed a theory of development which emphasized the role of social and cultural factors in development. In addition, Erikson’s theory did not characterize development as ending with adolescence but proposed a true life-span developmental theory which suggests development continues through to old age.
Erikson (1963) believed that human development is best understood as the interaction of three different systems: the somatic system, the ego system, and the societal system. The somatic system is all of those biological processes necessary for the functioning of the individual. The ego system includes those processes central to thinking and reasoning. Finally, the societal system is those processes by which a person becomes integrated into their society. Thus, Erikson’s psychosocial approach focuses the study of development on the interaction between changes in these three systems.

Erikson (1963) took a discontinuous view to development, believing that each of us progresses through eight stages of development. Erikson viewed these stages as occurring in an orderly sequence and he believed that each individual must pass through the stages in this order. At each stage, the individual is confronted with a unique crisis, an age-related task, which must be faced and resolved by the individual. How successfully an individual resolves each crisis determines the nature of further development: successful resolutions lead to healthier developmental outcomes while unsuccessful or incomplete resolutions lead to less optimal outcomes. In addition, at each stage of development, the accomplishments from the previous stage serve as resources to be applied towards mastering the present crisis or challenge. Each stage is unique and leads to the acquisition of new skills and capabilities.

As noted, Erikson proposed eight stages of psychosocial development: (1) basic trust versus mistrust (birth to 1 year); (2) autonomy versus shame and doubt (1 to 3 years); (3) initiative versus guilt (3 to 6 years); (4) industry versus inferiority (6 to 11 years); (5) identity versus identity diffusion (adolescence); (6) intimacy versus isolation (young adulthood); (7) generativity versus stagnation (middle adulthood); (8) ego integrity versus despair (old age) (see Table 2.1). In what follows, we briefly consider the task of development at each of the eight stages of life proposed by Erikson.

During infancy (trust/mistrust), the infant’s first task is to develop a sense of trust and a sense of comfort in their caregivers, and eventually, in their environment and in themselves; infants who fail to resolve this crisis in a positive manner may end up mistrusting both themselves and others. During the second stage (autonomy/shame and doubt), the infant develops a sense of their independence and autonomy. However, shame and doubt in one’s self may arise if the child is forced into activities which they do not choose. In the third stage (initiative/guilt), the young child develops a sense of initiative, a desire to master their environment. However, guilt can arise if the child shows too much aggression or is irresponsible. During middle childhood (industry/inferiority), children are keen to master intellectual and social challenges but failures may lead to feelings of inferiority and incompetence. During adolescence (identity/identity diffusion), individuals strive to discover who they are, that is, to develop a self-identity. Adolescents who fail to adequately explore alternative pathways
TABLE 2.1 Erikson’s eight stages of development

<table>
<thead>
<tr>
<th>Stage of development</th>
<th>Age</th>
<th>Crisis</th>
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<tbody>
<tr>
<td>Trust vs. mistrust</td>
<td>Birth to 1 year</td>
<td>Developing a sense of trust in caregivers, the environment, and one’s</td>
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<tr>
<td></td>
<td></td>
<td>self</td>
</tr>
<tr>
<td>Autonomy vs. shame and</td>
<td>1 to 3 years</td>
<td>Developing a sense of one’s autonomy and independence from the caregiver</td>
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<tr>
<td>doubt</td>
<td></td>
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</tr>
<tr>
<td>Initiative vs. guilt</td>
<td>3 to 6 years</td>
<td>Developing a sense of mastery over aspects of one’s environment, coping</td>
</tr>
<tr>
<td></td>
<td></td>
<td>with challenges and assumption of increasing responsibility</td>
</tr>
<tr>
<td>Industry vs. inferiority</td>
<td>6 years to</td>
<td>Mastering intellectual and social challenges</td>
</tr>
<tr>
<td></td>
<td>adolescence</td>
<td></td>
</tr>
<tr>
<td>Identity vs. identity</td>
<td>Adolescence (12 to</td>
<td>Developing a self-identity, that is, a knowledge of what kind of a</td>
</tr>
<tr>
<td>diffusion</td>
<td>20 years)</td>
<td>person one is</td>
</tr>
<tr>
<td>Intimacy vs. isolation</td>
<td>Young adulthood (20</td>
<td>Developing stable and intimate relationships with another person</td>
</tr>
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<td></td>
<td>to 40 years)</td>
<td></td>
</tr>
<tr>
<td>Generativity vs.</td>
<td>Middle adulthood (40</td>
<td>Creating something so that one can avoid feelings of stagnation</td>
</tr>
<tr>
<td>stagnation</td>
<td>to 60 years)</td>
<td></td>
</tr>
<tr>
<td>Integrity vs. despair</td>
<td>Old age (60 years</td>
<td>Evaluating one’s life by looking back; developing a sense of integrity</td>
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<tr>
<td></td>
<td>+</td>
<td>through this evaluative process</td>
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for themselves or who allow their identity to be determined by parents and others may experience confusion about who they are. During young adulthood (intimacy/isolation), the task is to achieve a stable and intimate sexual relationship with another person. How well the individual has resolved previous crises (e.g., learning to trust others; making friends and developing social skills) will determine how successful the individual is in achieving intimacy with others; individuals who cannot achieve intimacy are vulnerable to isolation. In middle adulthood (generativity/stagnation), the creation of something, whether it is children or something more abstract like ideas or art becomes the central task. The failure to express one’s self in this way can lead to feelings of stagnation and the feeling that one has no meaningful accomplishments. Finally, in old age (ego integrity/despair) we look back and assess our lives. The individual who has resolved previous stages in a negative fashion will tend to look back on their lives with a feeling of despair and gloom while the individual who has been successful will look back on a life well spent and can derive a sense of integrity.

Erikson’s theory of development has been criticized as taking the form of a loosely connected set of ideas which lacks a systematic quality, rather than as a coherent theory of development (Miller, 1993). Concepts such as generativity
are used in a way that is different from their normal meaning and thus they are somewhat difficult to understand. More problematic is the fact that his theory is difficult to test empirically. Finally, Erikson’s theory proposes no specific mechanisms for how development occurs, that is, how a person moves from one stage to the next. It describes the roles of factors such as maturation and social forces but fails to clearly state how these factors create movement between stages. Despite its weaknesses, Erikson’s theory has a number of strengths. One of these was Erikson’s push to widen the scope of psychoanalytic theory through the integration of social and cultural factors in development. Erikson also stimulated a renewed interest in topics such as the development of a sense of identity in adolescence (e.g., Waterman, 1983) and generativity in adulthood (Hawkins & Dollahite, 1997).

**Behaviourism and social learning theory**

Modern behaviourist theory began with the work of John B. Watson (1878–1958). Watson wanted to create an objective science of psychology and he believed that directly observable events should be the focus of the study, not hypothetical internal constructs like Freud’s id, and ego or the cognitive psychologist’s appeal to constructs such as mind. Watson (Watson & Raynor, 1920) applied Pavlov’s principles of classical conditioning to children’s behaviour. In one of his most famous research programmes Watson trained Albert, a 9-month-old baby, to fear a neutral stimulus (a white rat) after presenting it several times in the company of a loud sound (clanging an iron bar behind the infant’s head). While initially Albert reached out to touch the rat, he soon learned to fear the rat, crying and turning his head away from the sight of the animal. On the basis of findings like these, Watson concluded that the environment was the most important factor in child development. Watson believed that children could be moulded in any direction adults desired if they carefully controlled stimulus–response associations. Watson and his fellow behaviourists eschewed all notions that cognitive processes intervened in the shaping of the individual. In Watson’s behaviourism, learning became the key element in explaining development, whereas biological factors were relegated to the sidelines and believed to be important only in providing a basic foundation for learned responses.

Another variant of behaviourism was B.F. Skinner’s operant conditioning theory. According to this theory, the likelihood of a child’s behaviour reoccurring can be increased by following it with a wide variety of rewards or reinforcers, things such as praise or a friendly smile. Furthermore, Skinner believed that the likelihood of behaviour can be decreased with the use of punishments such as the withdrawal of privileges, parental disapproval, or being sent alone to one’s room. In other words, reward increases the likelihood
of a behaviour reoccurring while punishment decreases the likelihood of its reoccurring. The result of Skinner’s work was that operant conditioning became broadly applied to the study of child development.

A variant of traditional behaviourist views on development comes from the work of Albert Bandura (1977, 1989) on social learning theory. Bandura believed that the principles of conditioning and reinforcement elaborated by Skinner and others were important mechanisms of development, but he expanded on how children and adults acquired new responses. Bandura is responsible for an extensive line of laboratory research demonstrating that observational learning (often referred to as modelling), is the basis of the development of a wide variety of behaviours, such as aggression, helping, sharing, and even sex-typed responses. Bandura recognized that, from an early age, children acquire many skills in the absence of rewards and punishments, simply by watching and listening to others around them. However, children do not imitate everyone around them; children are more selective, being drawn towards models who are warm and powerful and who possess desirable objects and characteristics.

Bandura continues to influence much of the work in the area of children’s and adult’s social development (Rubin, Coplan, Nelson, Cheah & Lagace-Seguin, 1999). Over time, Bandura’s theory has become increasingly cognitive (e.g., Bandura, 1989, 1992), acknowledging that children’s ability to listen, remember, and abstract general rules from complex sets of observed behaviour affects their imitation and their learning. In Bandura’s more recent work, his emphasis has been on the development of a sense of self-efficacy, beliefs about one’s own effectiveness and competence that guide one’s ability to cope with particular situations such as difficult academic problems at school. According to Bandura, children develop a sense of self-efficacy through observation, watching others comment on their own behaviour and developing standards based on these experiences. Thus, children who are exposed to positive models who demonstrate qualities such as persistence are likely to develop a stronger sense of self-efficacy than children exposed to models that demonstrate less positive qualities such as giving up in response to frustration.

A strength of Bandura’s social learning theory is its emphasis on particular aspects of the environment, such as the nature of the role models available to children, which can impact on their development. In addition, social learning theory is easily testable (Miller, 1993): the variables of interest are clearly defined and its hypotheses are stated in a precise fashion. The resultant testing of the theory has led to substantial revisions such as its increased emphasis on cognitive factors. At the same time, the cognitive model which underlies the theory has been criticized for being poorly worked out in comparison to information processing theories which present detailed models
of cognitive processes. Finally, social learning theory has been criticized for not paying enough attention to a wide range of contextual variables which may impact on children’s observational learning. While the theory has addressed some contextual variables like the characteristics of models which effect development, other context effects such as socioeconomic factors, race, sex and education remain relatively unexplored (Miller, 1993).

**The ethological perspective**

**Ethology** is a perspective on the study of animal behaviour which began to be applied to research on children during the 1960s and continues to be influential today. Ethology is concerned with understanding the adaptive value of behaviour and its evolutionary history. The origins of ethology can be traced to Charles Darwin and his work on evolution, however, the modern theory owes its origins to the work of two European zoologists, Konrad Lorenz, and Niko Tinbergen. In his theory of evolution, Darwin proposed that we evolved from more simple forms of life through a process called **natural selection**. Natural selection works through the effects of a trait on survival; if a change to our physical structure or behaviour leads to a survival advantage, the change is more likely to be passed on through the genes to the organism’s offspring during mating. If the change leads to no advantages, it is less likely to be passed on, and the trait will tend to disappear. Thus, only traits which lead to a survival advantage for the organism are passed on. Natural selection is so called because nature weeds out those individuals who are unfit; in other words, natural selection is the ‘survival of the fittest’.

Based on the careful observation of animals in their natural habitats, researchers like Lorenz and Tinbergen noted that many animal species come equipped with a number of behaviour patterns that promote their survival. One of these behaviour patterns studied by Lorenz is known as **imprinting**. Imprinting refers to the ‘following behaviour’ of many species of birds. Imprinting is a behaviour which is acquired extremely rapidly and serves to ensure that the offspring will stay close to the mother so as to be fed and protected from predators. While nothing like imprinting seems to occur in human beings, a related concept from ethology has been very usefully applied to the study of child development. In birds such as gese, imprinting occurs during a restricted time period of development known as a **critical period**. A critical period is a time when an organism is biologically prepared to acquire a particular behaviour. For example, using gese, Lorenz found that if the mother goose was not present during the critical period, her goslings would imprint on a moving object which resembled important features, such as Lorenz himself. Lorenz (1963) showed that the gosling’s instinct to
follow its mother was not preprogrammed. Instead, the tendency to acquire a particular behaviour is programmed but the support of the environment is critical to the acquisition of this behaviour.

Ethologists' observations of a wide variety of animal behaviours have sparked investigations with humans regarding the development of such social behaviours as attachment, dominance hierarchies, aggression, and cooperation. For example, Strayer and Strayer (1976) recorded naturally occurring conflicts among preschoolers and found evidence of a stable dominance hierarchy (see Chapter 9), with some children being more dominant and less likely to be aggressed against by other children. John Bowlby's work on the attachment bond between caregivers and their children was also inspired by attachment theory (see Chapter 8). Bowlby argued that infants have a built-in signalling system to which mothers are geared to respond, a system which is designed to promote nurturance and protective behaviours by the parent.

Are there critical periods in human development? Bornstein (1989) suggested that the term sensitive period is a better descriptor of human development than the term critical period. According to Bornstein, a sensitive period is a window of time in a child's development during which they are particularly responsive to environmental influences. For example, there is a sensitive period for the acquisition of human language which lasts from shortly after birth to early adolescence (see Chapter 7). Learning language is particularly easy for children during this period, but extremely difficult after it. Given the length of time involved for language acquisition, it seems that the notion of a critical period is an inaccurate descriptor of how language learning takes place. Clearly, the notion of a sensitive period for language provides a more accurate picture of language acquisition.

Ethological theory has been extremely important to the study of child development in regard to its methodological contributions to the field (Rubin et al., 1999). Behavioural observations using techniques developed by ethologists are widely employed by researchers studying children. In addition, the emphasis on the evolutionary roots of behaviours has proven to be an important theoretical development within the study of child development. Asking how environmental pressures may have operated to select for a particular behaviour such that, over time, it becomes widely distributed in the species helps us to understand the cause of many important behaviours such as attachment behaviour. In addition, concepts such as sensitive periods have been criticized in that they only put off the question of an ultimate explanation for a particular behaviour; more work needs to go into discovering how sensitive periods operate. Finally, looking for the causes of a particular behaviour in our evolutionary history is difficult because we cannot go back in time. The sources of information that are available are not always reliable and are often extremely ambiguous.
Evolutionary developmental theory

According to a recent review of the history of developmental psychology (Dixon & Lerner, 1999), Charles Darwin’s theory of evolution has had a profound influence on theories of human development. As we have just seen, evolutionary theory influenced the development of ethological theories of human development. Evolutionary theory has also influenced theories of development as diverse as Freud’s psychosexual theory, to information processing theories of cognitive development (Siegler, 1996). Perhaps not surprisingly, evolutionary theory has come into its own as a theory of human behaviour (e.g., Barkow, Cosmides, & Tooby, 1992). As David Buss argues: ‘Any reasonably comprehensive theory of human development must include an account of where people come from, where they are going, and how long they live’ (1995: 24). In Buss’ view, an evolutionary psychological approach to human development has much to offer in the attempt to address these issues.

Geary and Bjorklund (2000) have recently applied the evolutionary psychology framework to generating an increased understanding of human development. In their view, evolutionary developmental psychology is the ‘study of the genetic and ecological mechanisms that govern the development of social and cognitive competencies common to all human beings and the epigenetic processes that adapt these competencies to local conditions’ (Geary & Bjorklund, 2000: 57). Let’s examine this definition more closely.

Perhaps the first point of interest is that the consideration of development from an evolutionary framework involves the study of both biological factors such as the hereditary transmission of traits from parents to their children, and the ecology in which development occurs (i.e., environmental effects on behaviour). The second point is that Geary and Bjorklund do not advocate a simplistic division between biological and environmental factors (or nature versus nurture); rather, they suggest that development is governed by epigenetic processes, that is to say, interactions of genes and environments. In their view, genes provide the instructions for guiding the development of observable traits such as height or personality, but that these genetic blueprints are highly sensitive to ‘local conditions’ – that is, aspects of the environment that may require changes to the genetic blueprints in order for a trait to lead to optimal outcomes.

What has an evolutionary developmental psychology contributed to our understanding? To date, relatively little research has been conducted from this perspective, in large part, because the theory is a relatively recent arrival on the scene. Buss (1995) cites a number of instances where an evolutionary developmental framework has contributed to a greater understanding of developmental phenomena. For example, research on children’s relationships with their parents and the warmth of the parent–child bond has been viewed
as an evolved system which facilitates parental investment in the child, promoting their survival and ensuring cohesive family relations. The timing of puberty and the effects of early environments on physical maturation is another area which Buss suggests has been aided by an evolutionary analysis. As we discuss in Chapter 4, recent research (Moffit, Caspi, Belsky, and Silva, 1992) demonstrated that ecological factors such as family conflict and the absence of fathers in the household predicted the earlier onset of menstruation in females. Belsky, Steinberg, and Draper (1991) explained these findings by suggesting that particular events during childhood predispose the child towards different developmental pathways. The presence of the father during childhood may push the child towards a later mating strategy which will be characterized by long-term relationships and high levels of parental investment. In contrast, early father absence may push the child towards an earlier mating strategy marked by early sexual maturation and more short-term relationships. These are just a few examples of the sort of contributions that evolutionary developmental psychology has made to the study of child development. However, much more work remains to be done in elaborating the theory and assessing how useful it will be to generating a better understanding of child development.

The bioecological model of development
A view which has received an increasing amount of attention from developmental psychologists is Urie Bronfenbrenner’s bioecological model of human development (Bronfenbrenner & Morris, 1998) (see Figure 2.1). Bronfenbrenner (1974) is famous for his suggestion that an overemphasis on lab research had caused developmental psychology to become ‘the study of the strange behaviour of children in strange situations for the briefest possible period of time’. In contrast to the bulk of developmental research which is conducted in laboratory settings, Bronfenbrenner argued that the proper study of development required one to observe children and adults in their actual environment; most laboratory research misses out on critical information which can only be gained by studying children in natural contexts. In addition, a great deal of laboratory-based research is not generalizable to the everyday contexts in which humans live and grow (Bronfenbrenner, 1979).

When psychologists examine the effects of the environment on children, the environment is typically construed in a very static and narrow fashion – often as the child’s immediate surroundings. In contrast, Bronfenbrenner (1989) views the environment as a dynamic entity which is constantly changing. In addition, in Bronfenbrenner’s (1979) bioecological model of human development, the environment is conceived of in a very wide sense, as a series of nested structures that extends beyond the child’s immediate
environment (e.g., their home or neighbourhood) to include their school, community, and the social and cultural institutions that impact on their lives. In Bronfenbrenner’s model, the individual is the centre of a system which includes four layers, each representing different aspects of the environment. Each of the four layers is regarded as having a powerful impact on the child’s development.

The innermost level is called the **microsystem**. The microsystem is the immediate setting in which a child lives; it refers to family, peers, school as well as the activities, roles, and relationships in their immediate surroundings. In Bronfenbrenner’s view, the individual is viewed as an active force, exerting an influence on the people around her and on the relationships she has with others. The child is not a passive recipient of others’ attention and actions. Thus, within the microsystem, development is often understood in terms of complex, interacting relationships.

The second level of Bronfenbrenner’s model is called the **mesosystem**. It refers to relationships among microsystems, such as home, school, neighbourhood, and childcare centre. One could think about the mesosystem as the connections which bring together the different contexts in which a child develops. For example, a child’s ability to learn to read may depend not just on learning activities that take place in school, but also on the extent to which those activities carry over to the home environment, such as the presence of books in the home or how much time parents spend reading with their children. The view that ‘it takes a village to raise a child’ is a recognition of the importance of the mesosystem in development. Bronfenbrenner and
Morris (1998) suggested that the best and most complete picture of a child's development will be obtained when they are examined in multiple contexts rather than just in the home or the school.

**Exosystems** are broad social settings that provide support for the development of children and adults. These are social settings and institutions that do not directly involve children yet which can have a profound impact on their development. Exosystems include formal settings such as community health services, parks, recreation centres, city government, and informal groups such as one's extended family, social support networks, and the workplace. These groups can provide important support for the family – such as flexible work schedules, paid maternity and paternity leave, or low-cost childcare – support that can enhance the development of children. Negative impacts on development can also result when the exosystem breaks down. For example, families who are affected by unemployment show an increased incidence of child abuse and neglect.

At the outermost level of Bronfenbrenner's model is the **macrosystem**. The macrosystem is not a specific environmental context but, rather, the overarching ideology, values, laws, regulations, and customs of a given culture. Cultural influences can have a powerful effect on children’s development. Comparisons made across cultures have the potential to provide very important information about the effects of culture on development.

Bronfenbrenner also included in his model the notion that development occurs in historical time within his model. He called this temporal aspect the **chronosystem**. The chronosystem involves all aspects of time, and how they impact on development. For example, research on the timing of puberty has shown that the age at which puberty begins can have a profound impact on later development (Jones & Bayley, 1950). Historical events which occur in time also have important effects on development. For example, the work of Elder (1974) showed that the economic depression of the 1930s had significant impact on the lives of children growing up during that period. In these ways and many others, the chronosystem has a powerful influence on development.

**Life-course theory**

In a recent review of his bioecological theory of development, Bronfenbrenner (Bronfenbrenner & Morris, 1998) emphasized the importance of time as a variable which demands the attention of developmental psychologists. Another theoretical orientation which emphasizes the role of time in human development is **life-course theory** (Elder, 1995, 1998). The life course, refers to a 'sequence of socially defined, age-graded events and roles that the individual enacts over time' (Elder, 1998: 941). According to Elder, our lives
are defined in large part by the social context in which we develop. For example, in many Western societies, parents’ conceptions of when it is appropriate for their children to begin dating are changing, partly as our societal expectations for what constitutes normal, age-appropriate experiences evolves.

Life-course theory emphasizes the view that human development must be understood in terms of four interdependent principles. First, human lives are situated in historical time and place. The timing of an individual’s birth is an important determinant of the development trajectories they will likely follow. Historical influences can impact on us in different ways. One way in which historical forces impact on us is through cohort effects. A cohort is a group of people born at a particular point in time (e.g., ‘baby boomers’ or ‘generation X’). A cohort effect occurs when people from different birth cohorts are differentially impacted upon by some historical event. For example, in his work on the effects of the US economic depression in the 1930s, Elder (1974) showed that younger children were more adversely affected by the impact of the depression than were older children. Another type of historical effect is called a period effect. This occurs when a historical event exerts a relatively uniform influence across different birth cohorts. For example, Elder notes that whatever cause is responsible for the increase in divorce rates over the past four decades, it has affected most birth cohorts in a similar fashion. Finally, in regard to historical time and place, Elder notes that geographical settings are often an extremely important factor neglected in developmental studies, and furthermore, that time and place are often inextricably linked.

A second key element of life-course theory is the idea that developmental studies must pay attention to the timing of lives. Our lives are socially timed in that the way social roles and events are organized has much to do with what is considered normative for a particular age group by the society in which an individual develops. We often ask of ourselves or others, whether we are ‘on course’ or ‘on time’ in regard to specific aspects of our development. For example, it is highly likely that our parents worried about whether our academic performance as adolescents was ‘normal’ relative to other adolescents. The social timing of lives can have profound effects on development: consider the woman who puts off having a child until her career is established versus the teenage girl who becomes pregnant. Clearly, this choice entails different developmental pathways for the two women, with each pathway offering opportunities for personal growth, albeit of different kinds.

Third, life-course theory emphasizes that human lives are interdependent or linked with each other. Our lives are embedded in family relationships, peer relationships, romantic relationships and in various other relationships such as those we have with our coworkers or classmates. Attachment theory suggests that the quality of the relationship that we form with our primary caregiver in infancy has an impact on later relationships we form with friends.
and, eventually, with our romantic partners. In turn, our attachment relationship with our own children is affected by the relationship we had with our caregivers. Attachment theory is built on the premise that human lives are linked with each other. Throughout this text we will continue to examine how relationships affect children’s development.

Finally, the fourth principle of life-course theory is that within certain social constraints, human beings have agency, that is, the power to make decisions and change our lives. The social environment places constraints on the kinds of actions that people can take to change their lives. For example, one cannot pursue a career in engineering without the appropriate education, thus, a person’s choice of career is necessarily limited by the education they have chosen to pursue. However, although there are constraints, our choices have a high degree of impact on our lives. For example, Rutter and Rutter (1993) note that how we choose to behave with and relate to other people serves to shape and select the environment that we actually experience. In addition, Rutter and Rutter note that planning one’s decisions proves to be a protective process in the long term whereas the lack of planning is considered to be a risk factor for poor outcomes. Going back to an earlier example, the adolescent who anticipates engaging in sexual activity, and takes steps to obtain contraception reduces not only the risk of an unwanted pregnancy or sexually transmitted disease, but also the risk of embarking on a developmental pathway which may lead to unhappiness.

In summary, life-course theory has much in common with theories such as Bronfenbrenner’s biocological theory with its emphasis on the importance of the various types of environments which impact on development and with the principles of Baltes’ (1987) life-span developmental psychology which emphasizes the importance of contexts and timing. However, in Elder’s view, social environments should be the major emphasis of developmental studies. This differs from the views of Bronfenbrenner and Baltes, who both place the individual at the centre of their models of development.

Dynamic systems theory

Dynamic system theories of development emerge out of a growing disenchantment with the traditional theories’ focus on environmental causes, biological causes, and interactions of biology and environment as explanations of development. A growing number of researchers have put forward theories which emphasize systems thinking (e.g., Bertalanffy, 1968; Sameroff, 1983; Thelen & Smith, 1994). These researchers have suggested that human beings and their environments can be thought of as a collection of systems, where a system is defined as being composed of a number of elements which are organized in some fashion. A family is a good example of a system. Families
consist of a number of elements such as father, mother, children. Moreover, the relations of the elements to one another can be described; for example, children normally obey mother's and father's rules. However, the behaviour of the family can only be truly understood in systems terms, that is, by considering the interrelations among all the parts, the family's history, and external influences which may operate to stabilize or destabilize its functioning. In other words, the family's behaviour is more than just the sum of its individual parts.

So then, what is dynamic systems theory? According to a review by Thelen and Smith (1998), dynamic systems theory is a *metatheory*; that is, it is an approach to studying development that can be widely applied to many domains, for example, from areas as diverse as *embryology* (the study of how a fertilized egg becomes an infant), family functioning, and the development of motor skills (Thelen & Ulrich, 1991). However, Thelen and Smith also argue that dynamic systems theory can be employed as a specific theory of how humans gain knowledge via action, perhaps best exemplified in Thelen's work on the development of motor skills.

Thelen and Smith (1998) suggest a metaphor which is useful in understanding the way in which dynamic systems theorists view development. They ask us to consider a fast-moving mountain stream. The stream shows stable patterns in its flow, for example, whirlpools, eddies, and ripples which occur because of rocks in the stream bed, or waves and spray where the stream bed is shallow and steep. Thelen and Smith argue that no one would explain the regularities in the flow of the stream by invoking a 'grand plan'. Instead, we recognize that the stream shows the patterns it does because of the constraints under which it operates. The regularities in the patterns we observe occur because of multiple factors operating simultaneously: the configuration of the stream bed and the placement of rocks; the rate of flow of water; the erosion of the stream bed. Thelen and Smith suggest that this metaphor of a mountain stream depicts development as truly epigenetic, that is, as constructed by the system's own history, by its current activity, and by the constraints under which the system operates.

How can a dynamic systems perspective be applied to the study of child development? Thelen has led the way in her own research, illustrating how a dynamic systems approach can help us to better understand behaviour. For example, it is well known that newborns, when held upright in a standing position, show a stepping reflex. After some time, this reflex disappears and later re-emerges. In contrast to theories which postulated that this process was under the control of genetic factors, Thelen and Fisher (1982) showed that the reflex 'disappears' because of changes in other aspects of the infant's physiology. In the case of the stepping reflex, body fat begins to accumulate on the infant's leg, making the leg heavier. However, muscle mass is not
added at the same rate, meaning the infant is no longer able to physically lift
their leg, thus the stepping reflex ‘disappears’. However, the stepping reflex
can be made to reappear by immersing the infant in water from the waist
down. The effects of buoyancy act to reduce the weight of the infant’s legs
and the stepping reflex reappears. In Thelen’s view, the best way in which to
understand this finding is from a dynamic systems perspective: as changes are
made to the system, behaviours are reorganized in a dynamic fashion. The
stable patterns previously observed can be brought back by changing the
effects of the constraints which altered the behaviour.

Consider another example from the study of infant motor development. Previous theories of motor development have suggested that behaviours such as
the development of ‘creeping’ or ‘crawling’ are programmed to emerge prior to walking. Thelen and Smith (1998) suggest it is unnecessary to invoke
a genetic programme to explain this fact, rather, they suggest that we can
think of the development of crawling as a behaviour which is softly
assembled from previously existing competencies. In other words, a genetic
blueprint for crawling does not suddenly emerge and guide the baby towards
this behaviour; instead, the infant creates the behaviour based on the
constraints under which they operate, plus their goals and desires. The infant
may desire a toy which is across the room and intends to move towards it.
The state of their neuromuscular system is such that they cannot yet maintain
enough balance to walk upright so the infant employs another solution,
crawling, which allows them to make use of the skills they have already
acquired. The development of crawling behaviour is a predictable outcome of
the infant’s desires and its current range of abilities. However, it is not an
inevitable solution: some infants develop alternative methods such as crawling
on their bellies or scooting along on their bottoms by using their arms. The
development of such alternative strategies depends on the infant’s previous
history of motor skills and the current state of maturation of their musculature
and suggests that crawling is not simply the outcome of a genetic
blueprint which dictates development.

**Cognitive developmental theories**

In regard to the study of cognitive development, there are three theories which
have had a dramatic impact on the field. These are Piaget’s cognitive-
developmental theory (e.g., Piaget, 1983), Vygotsky’s sociocultural theory
development (Vygotsky, 1978, 1986), and the information processing approach
to cognitive development (Klahr & MacWhinney, 1998; Siegler, 1996). Given
that these three theories are primarily to do with cognitive development, we will
cover them in more detail in Chapter 6. What follows here is a brief summary of each one.
Jean Piaget's theory of cognitive development

Jean Piaget (1896–1980) is widely acknowledged as the theorist who has had the greatest impact on research and theory in the field of child development (e.g., Siegler, 1998). Piaget began working in developmental psychology in the 1920s but it was not until the 1960s that his work garnered much attention as it became increasingly available. Piaget's work was largely at odds with the behaviourist tradition which was dominant in North America until the 1960s. Unlike the behaviourists of the day, Piaget did not view the child as a passive recipient of knowledge whose development is the product of reinforcement or punishment, but, rather, as an active participant in the creation of their own understanding.

Piaget's (1971) theory of development borrowed heavily from the field of evolutionary biology. A central concept in Piagetian theory is the idea that our cognitive structures (i.e., our minds) are adaptations which help ensure that our knowledge provides a good 'fit' to the world. Piaget viewed human intelligence as an adaptation which ultimately enhanced our chances of survival. Of course, we know from experience (often, painfully so) that our knowledge does not always match reality perfectly. For example, we often act on the basis of false assumptions, incorrect knowledge or a partial understanding. Young children's thinking is also rife with misunderstandings about the nature of the world. For example, Piaget noted that preschool children's thinking is often strongly tied to the child's own point of view and fails to consider the fact that another person might have a very different perspective on a situation. According to Piaget, cognitive development is a process of revision: children revise their knowledge to provide an increasingly better fit to reality. Piaget referred to this process as the establishment of equilibrium between the child's cognitive structures and the nature of the physical and social world.

Piaget viewed children's cognitive development as progressing through four stages. By stage, Piaget meant a period of development which is characterized by knowledge structures which are qualitatively similar and lead to distinctive modes of thought. In the sensorimotor stage of development, lasting from birth to about 2 years of age, the infant thinks about the world through their actions on it. Piaget believed that the basis of our ability to think abstractly is rooted in our ability to act on the world. Eventually, the infant's actions become increasingly organized, leading to the next stage of development which Piaget termed the preoperational stage. The major feature of this stage (which characterizes development from the ages of 2 to 7) is the ability to think using symbolic representations, that is, the child no longer has to act on the world to think but can use symbols and carry out operations mentally. The third stage of development, lasting from 7 to 12 years of age, is the concrete operational stage, characterized by the increasingly logical character of a child's thinking.
Finally, at the formal operational stage, the adolescent gains the ability to think abstractly. Unlike the concrete operational child, the adolescent’s thinking is no longer tied to concrete reality but can move into the possible or hypothetical.

As mentioned earlier, Piaget’s theory has proven extremely influential to the study of children’s cognitive development; however, in recent years, the theory has come under an increasing level of criticism. For example, many developmental psychologists are dissatisfied with Piaget’s portrayal of the child as a solitary learner and feel that he did not give enough attention to the role of social and cultural factors in children’s cognitive development (e.g., Rogoff, 1998). In Chapter 6, we examine Piaget’s theory in detail, and consider both the strengths and weaknesses of the theory.

**Vygotsky’s sociocultural theory of development**

Like Piaget, Lev Vygotsky (1896–1934) was a firm believer that children actively explored their environment and were influential in shaping their own knowledge. Unlike Piaget, however, Vygotsky emphasized that the child’s social environment was an extremely important force in their development. Vygotsky (1935/1978) believed that it was through social interactions with more experienced and more knowledgeable members of their society – parents, relatives, teachers, peers – that children are able to acquire the knowledge and skills that a culture deems to be important. Thus, according to Vygotsky, development is a social process: social interactions are a necessary aspect of cognitive development.

Vygotsky also believed that children’s development follows a particular pattern. Any development occurs at two different levels: children first evidence development in interpersonal interactions which occur between themselves and other people. Only later do children show evidence of development on an individual or intrapersonal level. Vygotsky labelled this shift from development being evidenced on the interpersonal to an intrapersonal level as internalization.

An example of internalization can be seen in children’s self-talk while problem solving. Children take the kinds of dialogues they engage in with parents or teachers (e.g., ‘take your time’ or ‘be careful’) while solving problems and talk to themselves while working on problems alone. Eventually, this self-talk is internalized and the child no longer needs to talk out loud.

Finally, Vygotsky noted that parents and teachers tend to interact with children in the context of a teaching task in a particular fashion. Parents tend to adjust their level of interaction dynamically, responding to the child’s level of ability, and trying to pitch their teaching at a level which is just outside what the child can do on their own but at a level which is within the child’s ability to do with help. Vygotsky believed that parents and teachers worked at
a level that is optimal for stimulating children’s development. This example highlights Vygotsky’s belief that social interactions are critical to children’s cognitive development.

Information processing accounts of development
In recent years, an account of cognitive development has emerged which is founded on the analogy between the digital computer and the human mind. Computers are rule-based systems which process information according to a limited and concretely specified set of rules. Information is input into the system and is encoded into a form that the computer can manipulate. This information is then transformed via a series of operations into useful output, for example, the solution to an equation. Similarly, the human mind is believed to operate in the same fashion, by encoding information input via our senses and transforming it into useful output. For example, we take in sound waves from the environment and transform this information via a specified set of operations into meaningful sentences. Human beings and computers share other similar features which enhance the strength of this analogy, such as the ability to manipulate symbols or the constraints on information processing caused by memory limitations. According to information processing theorists, the digital computer provides a useful tool for testing theories of cognitive development via the modelling of cognitive processes (Klahr & MacWhinney, 1998).

Information processing theories are useful to the study of cognitive development in that they require the researcher to map out the series of steps which they believe best describes the flow of information through the human mind. This process of mapping information flow adds a degree of precision to these accounts of cognitive development which is generally open to empirical tests. Thus, information processing models are often readily tested and updated on the basis of experimentation. Information processing theories also stress the importance of identifying the mechanisms which underlie developmental change; they do not simply provide a description of change but also model how change occurs. Finally, information processing theories often force us to address factors that affect development but which previously may not have been considered.

There are a wide variety of information processing models of children’s cognition, ranging from models of children’s developing ability to perform addition problems to models of children’s learning of the rule for making verbs indicate the past tense in English (Klahr & MacWhinney, 1998). Whereas in the past, information processing theories have been criticized for their lack of attention to cognition in real world tasks, this trend is changing as newer information processing models begin to address this issue via the
<table>
<thead>
<tr>
<th>Theory</th>
<th>Organism vs. mechanism</th>
<th>Discontinuity vs. continuity</th>
<th>Nature vs. nurture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychoanalytic theory</td>
<td>Organismic</td>
<td>Discontinuous: Emphasizes stages of development that are qualitatively different</td>
<td>Nature (biological drives) and nurture (role of early experience) both play a role</td>
</tr>
<tr>
<td>Psycosocial theory</td>
<td>Organismic</td>
<td>Discontinuous: Emphasizes stages of development that are qualitatively different</td>
<td>Nurture: Age-related social demands are the primary determinants of development</td>
</tr>
<tr>
<td>Behaviourism and social learning theory</td>
<td>Mechanistic</td>
<td>Continuous: Increase in learned behaviour is continuous</td>
<td>Nurture: Principles of learning are based on environmental contingencies</td>
</tr>
<tr>
<td>Ethological theory</td>
<td>Organismic</td>
<td>Continuous and discontinuous elements: Learned behaviours increase continuously but critical/sensitive periods may lead to qualitative changes</td>
<td>Nature (biologically based, instinctive behaviours, genetic factors) and nurture (experience plays an important role in learning) interact</td>
</tr>
<tr>
<td>Evolutionary developmental theory</td>
<td>Organismic</td>
<td>Not clearly specified</td>
<td>Nature (genetic factors can influence behaviour) and nurture (experiences play an important role in shaping behaviour)</td>
</tr>
<tr>
<td>Biocological theory</td>
<td>Organismic</td>
<td>Not clearly specified</td>
<td>Nature (individual characteristics) and nurture (a variety of environmental influences act on the individual)</td>
</tr>
<tr>
<td>Life course theory</td>
<td>Organismic</td>
<td>Discontinuous: Age-related demands lead to qualitative developmental change</td>
<td>Nurture: Social demands and environmental influences play an important role in determining development</td>
</tr>
<tr>
<td>Dynamic systems theory</td>
<td>Mechanistic</td>
<td>Continuous and discontinuous elements: Learned behaviours increase continuously with the possibility for qualitative reorganizations</td>
<td>Nature (biological constraints) interacts with nurture (experience in context) to produce developmental change</td>
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**Cognitive developmental theories**

<table>
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<tr>
<th>Theory</th>
<th>Organism vs. mechanism</th>
<th>Discontinuity vs. continuity</th>
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<tbody>
<tr>
<td>Piagetian theory</td>
<td>Organismic</td>
<td>Discontinuous. Emphasizes emergence of stages of development that are qualitatively distinct</td>
<td>Nature (reflexive behaviours and drive for organization) and nurture (experience with the environment) interacts to produce development</td>
</tr>
<tr>
<td>Vygotsky's sociocultural theory</td>
<td>Organismic</td>
<td>Continuous: Interactions with more competent members of one's culture leads to developmental change in a continuous fashion</td>
<td>Nurture: Social interactions with others are the primary influence on development</td>
</tr>
<tr>
<td>Information processing theory</td>
<td>Mechanistic and organic elements</td>
<td>Continuous: The development of skills and strategies increases in a continuous fashion</td>
<td>Not clearly specified</td>
</tr>
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</table>
modelling of performance on everyday tasks such as reading comprehension. A more recent trend in the study of information processing is the use of connectionist models, which are models of information processing based on the structure of the human brain and its ability to carry out processing in parallel (that is, to perform multiple operations simultaneously). (See Table 2.2 for an overview of the theories of human development.)

SUMMARY

It should be apparent from our brief survey in Chapter 2 that there are a rather large number of theories of human development. Importantly, the theories we cover here are not mutually exclusive; quite often, the theories focus on distinct parts of the life span (e.g., infancy or adolescence) or different domains of development (e.g., emotion or cognition). Our coverage of theories was not exhaustive but is, in fact, representative of the types of theories which are currently invoked to understand children’s development. Developing a knowledge of the different theoretical positions is an important task, as it will help you to better understand the research literature which we will cover throughout this text.

Glossary

**Assumptions** are the guiding premises underlying the logic of a theory.

**Biocological model** is a model in which development is viewed as the product of interactions between an individual’s capabilities and a dynamic environment.

**Chronosystem** In Bronfenbrenner’s theory, the notion that development occurs in historical time.

**Classical conditioning** is a form of learning in which the pairing of a response with a stimulus leads to the ability of the stimulus to evoke the response.

**Cognitive developmental theory** refers to theories regarding the development of cognition, the most famous of which is Piaget’s theory of cognitive development.

**Cohort effects** A cohort is a group of people born at a particular point in time. Cohort effect events have differential impacts on different birth cohorts.

**Crisis** refers to Erikson’s belief that individuals must resolve a series of age-related tasks. How successfully an individual resolves each crisis determines the course of later development.

**Critical period** is a time when an organism is biologically prepared to acquire a particular behaviour.
**Dynamic system theory** is a theory of development which suggests that individuals develop within systems. The proper study of development includes a focus on these systems.

**Ego** In Freud’s theory, the part of the personality that works to satisfy instinctive drives in a socially acceptable manner.

**Embryology** is the study of how a fertilized egg becomes an infant.

**Epigenetic** processes refer to the interactions of genes and environments.

**Erogenous zones** Parts of the body which afford pleasure through their stimulation. In Freud’s theory, the erogenous zones change with development.

**Ethology** is a theory of behaviour concerned with understanding the adaptive value of behaviour and its evolutionary history.

**Evolutionary developmental psychology** is the study of the genetic and environmental mechanisms that govern the development of competencies common to all human beings and the epigenetic processes that adapt these competencies to local conditions.

**Exosystems** In Bronfenbrenner’s theory, the broad social settings that provide support for the development of children and adults but which do not directly involve children (e.g., community health services, parks, recreation centres).

**Id** The part of our personality which, according to Freud, is made up of instinctual drives.

**Imprinting** refers to the extremely rapid acquisition of ‘following behaviour’ in geese.

**Information processing theories** Theories of development which focus on documenting how information flows through the cognitive system and the cognitive operations which transform that information.

**Life course** refers to a sequence of socially defined and age-graded events and roles that the individual enacts over time.

** Macrosystem In Bronfenbrenner’s theory, the overarching ideology, values, laws, regulations, and customs of a given culture.**

**Mechanism** refers to a class of developmental theories that stress quantitative changes in behaviour and emphasize that factors outside the control of the organism play the major role in developmental change.

**Mesosystem** In Bronfenbrenner’s theory, the relationships among micro-systems.

**Microsystem** In Bronfenbrenner’s theory, the immediate setting in which a child lives (e.g., neighbourhood, school, family).
Natural selection works through the effects of a trait on survival; if a change to our physical structure or behaviour leads to a survival advantage, the change will be passed on through the genes to the organism’s offspring during mating. If the change leads to no advantages, it will not be passed on and the trait will disappear. Thus, only traits which lead to a survival advantage for the organism are passed on.

Observational learning (often referred to as modelling) is the acquisition of a behaviour through the observation or imitation of others around one.

Operant conditioning refers to a type of learning where the likelihood of a behaviour reoccurring can be increased by reinforcements and decreased by punishments.

Organicism refers to a class of developmental theories that stress the qualitative features of developmental change and which emphasize the organism’s role in bringing about those changes.

Period effects occur when a historical event exerts a relatively uniform influence across different birth cohorts.

Pleasure principle Freud’s belief that the id attempts to maximize its pleasure in an immediate fashion.

Psychodynamic theories emphasize the belief that forces or dynamics within the individual are responsible for our behaviour.

Punishments are the consequences of a behaviour that decrease the likelihood of the behaviour reoccurring.

Range of applicability is the range of phenomena to which a theory properly applies.

Reinforcers are the consequences of a behaviour that increase the likelihood of the behaviour reoccurring.

Self-efficacy refers to beliefs about one’s own effectiveness and competence to cope with a situation.

Sensitive period is a window of time in development during which an organism is particularly responsive to environmental influences.

Social learning theory Bandura’s theory that the principles of operant conditioning and observational learning are important mechanisms of development.

Sociocultural theory refers to Vygotsky’s theory which views development as dependent on the child’s interactions with other, more skilled members of the culture.
**Softly-assembled** the idea, from dynamic systems theory, that a given behaviour does not depend on a genetic blueprint but occurs as a result of changing constraints and supports from the context in which the behaviour occurs.

**Superego** In Freud’s theory, the part of the personality which is the internalized values and standards of the child’s parents and culture.

**Theories** take the form of an interconnected set of concepts used to integrate and to interpret empirical observations. **Formal theories** should be logically consistent and contain no contradictions, fit well with empirical observations, be testable, remain as simple as possible, and cover a defined range of phenomena. **Informal theories** are organized sets of intuitions or expectations about the world, often referred to as *implicit theories*.