



# Theories of Development

## Learning Aims

At the end of this chapter you should:

- Be able to explain the importance and function of theories.
- Be able to explain the core concepts associated with 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.
- Be able to compare and contrast the theories, understanding the strengths and the limitations of each theory.

## INTRODUCTION: 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 (for example, 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 are made up of an interconnected set of hypotheses, definitions, axioms,

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and laws, each of which is an explicit concept which fits with or can be deduced from the overall theory (Miller, 2002). Formal theories can be expressed in a variety of ways: using ordinary language, or in mathematical form, or sometimes as logical principles. Ideally, a formal theory should be logically consistent with no contradictions, should fit well with empirical observations (rather than be contradicted by them) and be testable, should be as simple as possible and should also cover a reasonable range of phenomena (Miller, 2002). In contrast, informal theories are less rigorous; they are often little more than organized sets of intuitions or expectations about our world (often referred to as *implicit theories*). In developmental psychology we have no formal theories of human development (Miller, 2002), 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 by 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 the 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 those factors which are central to understanding a given behaviour from other 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 – namely, 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, 2003.)

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. 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 the theories which are currently being used or have previously been important to the study of child development.

## THEORIES OF HUMAN DEVELOPMENT

In this section, we will review a number of the most important theories of child development. Some of these, 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 included because of their current importance to the field.

While there are numerous theories regarding human development, the search for underlying commonalities across these has revealed that all developmental theories can be classified as being based on at least one of two philosophical models (Dixon and Lerner, 1998): **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 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 have adopted elements of both mechanism and organicism to explain human development. As we review each of the theories below, see if you can classify the theories discussed in terms of whether they subscribe to organicism, mechanism, or some combination of the two.

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Another important distinction that can be made between theories is the degree to which they are **contextual**. Many developmental psychologists appreciate that children, and indeed adults, behave differently in different contexts (Magnusson and Stattin, 1998). As you may have noted with your own behaviour, we tend to behave quite differently at home, in the classroom, and with our peers. This differential pattern of functioning applies to the individual's wider context as well. Thus, contextual perspectives commonly take into account the child's broader community and society, and often seek to understand how society and culture impact on the child's development. Contextual approaches may ask questions such as, 'would a child who is difficult to soothe and born into a patient and loving family be less likely to throw temper tantrums later on than the same child born into a hostile or challenged family?' Much of the research on children's temperament (for example, Plomin et al., 2001; Tschann et al., 1996) takes such a contextual approach. Bronfenbrenner's bioecological model, which we will examine shortly, is a classic example of a contextual approach.

### 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 today who are strict adherents of Freudian theory (which we discuss below), 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, but they are nevertheless important to know about.

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 the 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, set the stage for our adult personality.

In Freud's view, development is a discontinuous process. He 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 on 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 on the eliminative function. A potential source of conflict during this stage is the child's desire to immediately expel faeces clashing with 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 on the genitals with the discovery that their own genitalia will 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 focuses instead on developing their social and intellectual skills. Finally, during the genital stage which occurs during puberty, these sexual desires reawaken and the adolescent looks for appropriate peers (instead of family) to direct their sexual drives toward.

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 being 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. In essence and notwithstanding the many negative assessments it has faced, Freud's theory has been a rich source of hypotheses about development (Miller, 2002). Yet 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 those issues which might be important to the development of females. In addition, the theory relied mainly on the use of methods such as free association and dream analysis, which make scientific tests of his theory difficult, if not impossible.

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Most tellingly, when Freud's claims have been put to the test, many of the most significant have not been supported by empirical testing. Thus, these 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 put more effort into highlighting the importance of experience and understanding 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 instead proposed a true life-span developmental theory which suggested development continued 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 consists of all the biological processes necessary for the functioning of the individual. The ego system includes those processes central to thinking and reasoning. Finally, the societal system encompasses the processes by which a person becomes integrated into their society. Thus, Erikson's psychosocial approach focuses on studying the development of the interaction between changes in these three systems.

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

As noted, Erikson proposed eight stages of psychosocial development:

- basic trust versus mistrust (birth to 1 year);
- autonomy versus shame and doubt (1 to 3 years);
- initiative versus guilt (3 to 6 years);

- industry versus inferiority (6 to 11 years);
- identity versus identity diffusion (adolescence);
- intimacy versus isolation (young adulthood);
- generativity versus stagnation (middle adulthood);
- ego integrity versus despair (old age).

In what follows, we will 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 will be to develop a sense of trust and 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 will develop 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 cannot choose. In the third stage (*initiative/guilt*), the young child will develop 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 become keen to master intellectual and social challenges but failures may lead to feelings of inferiority and incompetence. During adolescence (*identity/identity diffusion*), individuals will strive to discover who they are, that is, to develop a self-identity. Adolescents who fail to adequately explore alternative pathways 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 will be to achieve a stable and intimate sexual relationship with another person. How well the individual has resolved previous crises (for example, learning to trust others, making friends, and developing social skills) will determine how successful the individual will be 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, will become the central task. The failure to express one's self in this way can lead to feelings of stagnation and that one has no meaningful accomplishments. Finally, in old age (*ego integrity/despair*) we will 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 derive a sense of integrity.

Erikson's theory of development has been criticized for taking the form of a loosely connected set of ideas which lacks a systematic quality rather than providing a coherent theory of development (Miller, 2002). 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

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Table 2.1 Erikson's Eight Stages of Development

Stage of development	Age	Crisis
Trust vs. mistrust	Birth to 1 year	Developing a sense of trust in caregivers, the environment, and one's self.
Autonomy vs. shame and doubt	1 to 3 years	Developing a sense of one's autonomy and independence from the caregiver.
Initiative vs. guilt	3 to 6 years	Developing a sense of mastery over aspects of one's environment, coping with challenges, and assumption of increasing responsibility.
Industry vs. inferiority	6 years to adolescence	Mastering intellectual and social challenges.
Identity vs. identity diffusion	Adolescence (12 to 20 years)	Developing a self-identity, that is, knowledge of what kind of a person one is.
Intimacy vs. isolation	Young adulthood (20 to 40 years)	Developing stable and intimate relationships with another person.
Generativity vs. stagnation	Middle adulthood (40 to 60 years)	Creating something so that one can avoid feelings of stagnation.
Integrity vs. despair	Old age (60 years +)	Evaluating one's life by looking back; developing a sense of integrity through this evaluative process.

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 role of factors such as maturation and social forces but fails to state clearly *how* these factors create movement between stages. But despite its weaknesses, Erikson's theory still 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. His work has also stimulated research into topics as varied as the relationship between identity development and alcohol consumption in university students (Todd, 2006), and the role of generativity and wisdom in successful ageing (Van Hiel et al., 2006; Warburtin et al., 2006).

### Developmental task theory

Many researchers have been influenced by Erikson's psychosocial stages. One notable developmental theorist is Robert Havighurst (1952). He put forward

**developmental tasks theory**, whereby critical tasks occur at certain periods in our lives. The successful achievement of these tasks leads to happiness and success with later tasks, while not dealing with the tasks leads to unhappiness, social problems, and difficulty with later tasks.

Havighurst identified three sources of these developmental tasks, covering the entire life span. First are tasks that arise from physical maturation, such as learning to walk and talk, or how to deal with the changes brought about by the menopause during middle age. Second are tasks stemming from personal sources, such as the development of personal values and aspirations or learning skills for job success. Third are those tasks that arise from the pressures of society, including learning the role of a responsible individual. Further, Havighurst identified six major age periods that specific developmental tasks occur within: **infancy** and early childhood (0–5 years), for example learning to walk, crawl, talk; **middle childhood** (6–12 years), for example learning the physical skills necessary for games, learning how to get along with age mates, building wholesome attitudes toward oneself as a growing organism, achieving personal independence; **adolescence** (13–18 years), for example accepting one's physique and using the body effectively, preparing for marriage and family life, desiring and achieving socially responsible behaviour; **early adulthood** (19–29 years), for example selecting a mate, learning to live with a partner, rearing children, finding a social group; **middle adulthood** (30–60 years), for example assisting teenage children to become responsible and happy adults, achieving adult social and civic responsibility, reaching and maintaining satisfactory performance in one's occupational career; **later maturity** (61+), for example adjusting to decreasing physical strength and health, adjusting to retirement and reduced income, adjusting to death.

As you may have noted from some of the critical developmental tasks listed, Havighurst concentrated on white, middle-class Americans in devising his theory. However, he also recognized that the number of tasks we go through depends on our individual circumstances and the society we inhabit. Some tasks are the same for almost everyone, such as learning to crawl and walk. Other tasks will vary depending on the culture and society: some cultures will espouse marriage and employment early on, while others will approve of a long 'trial' period of education and experience with a partner.

Havighurst has been praised for the practicality of his theory and the recognition of sensitive periods in our lives. For example, knowing that a child is dealing with a critical task for his or her age (such as learning appropriate behaviour with the opposite sex) allows a parent to be understanding and to provide the necessary environmental support and constraints to encourage the successful mastery of that task. Despite these strengths, Havighurst's theory is not as well known or espoused as some would argue it should be.

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### 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 like mind. Watson (Watson and 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 nine-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 it, crying and turning his head away from sight of the animal. On the basis of findings like these, Watson concluded that the environment was the most important factor in child development. He also 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 were held 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 could be decreased with the use of **punishments**, such as the withdrawal of privileges, parental disapproval, or being sent to one's room. In other words, a reward will increase the likelihood of a behaviour reoccurring while a punishment will decrease the likelihood of it 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 – they are

more selective, being drawn towards models who are warm and powerful and who possess desirable objects and characteristics.

Bandura's research continues to influence much of the work in the area of children's and adults' social development (Rubin et al., 1999). Over time, Bandura's theory has become increasingly cognitive (see, for example, Bandura, 1989, 1992), acknowledging that children's ability to listen, remember, and abstract general rules from complex sets of observed behaviour affects both 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 which 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 by observation, by watching others comment on their own behaviour, and by 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 like giving up in response to frustration.

A key 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, 2002): the variables of interest are clearly defined and its hypotheses are stated in a precise fashion. The resultant testing of this 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 also 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.

## 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

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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 genetically 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 those 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 in order 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 geese, imprinting occurs during a restricted time period of development known as a **critical period**. This critical period is a time when an organism is biologically prepared to acquire a particular behaviour. For example, by using geese, Lorenz (1963) found that if the mother goose was not present during this critical period, her goslings would imprint on a moving object which resembled her important features, such as Lorenz himself. He thus showed that the gosling's instinct to follow its mother was not pre-programmed. 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. Emotion research has also shown that expressions such as joy, sadness, disgust, and anger are similar across many cultures, from Brazil to Japan and the USA (LaFreniere, 2000), suggesting there is a degree of universality in such basic emotions. John Bowlby's work on the attachment bond between caregivers and their children was also inspired by ethological 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 a 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 delay 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 which are available are not always reliable and can often be extremely ambiguous.

## Evolutionary developmental theory

According to a review of the history of developmental psychology (Dixon and Lerner, 1998), 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 (see, for example, Barkow et al., 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's view,

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an evolutionary psychological approach to human development has much to offer in any attempt to address these issues.

Geary and Bjorkland (2000) have 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' (2000: 57). Let's examine this definition more closely. Perhaps the first point of interest is that a 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 (namely, environmental effects on behaviour). Development is governed by **epigenetic** processes, that is to say, *interactions* of genes and environments. In this view, genes provide the instructions for guiding the development of observable traits such as height or personality, but also states 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.

Research conducted from an evolutionary perspective is growing. Buss (1995) cites a number of instances where an evolutionary developmental framework has contributed to a greater understanding of developmental phenomena. For example, the timing of puberty and the effects of early environments on physical maturation can both be aided by an evolutionary analysis. Research using evolutionary theory to guide questions, rather than as an ad hoc explanation, is becoming more common. For example, research with young people from New Zealand and the USA has shown that greater exposure to father absence is strongly associated with the risk for early sexual activity and adolescent pregnancy in girls (Ellis et al., 2003). Bruce Ellis and his colleagues explained this finding by suggesting that girls detect and internalize information about reproductive behaviours from their parents early on in their development. The presence of parents and the quality of their parenting are therefore likely to have a significant effect on a child's sexual understanding and behaviour. As we will discuss later, other research (Moffit et al., 1992) demonstrates that ecological factors such as family conflicts and the absence of fathers in households can even have a biological impact, by predicting the earlier onset of menstruation in girls. Evolutionary psychology would view a father's presence during childhood as pushing a child towards a later mating strategy characterized by long-term relationships. In contrast, early father absence may push a child towards an earlier mating strategy, marked by early sexual maturation in the form of early menstruation and more short-term relationships (Belsky et al., 1991).

These are just a few examples of the sort of contributions that evolutionary developmental psychology has made to the study of child development. In summary, evolutionary psychology is a very general approach that may shed light on almost any aspect of development that is concerned with understanding the interplay between genetics and the environment (Geary, 2006).

## The bioecological model of development

A view which has received increasing amounts of attention from developmental psychologists is Urie Bronfenbrenner's **bioecological model** of human development (Bronfenbrenner and Evans, 2000; Bronfenbrenner and Morris, 1998). Bronfenbrenner (1974) is famous for his suggestion that an over-emphasis 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 the observation of children and adults to take place in their actual environment, that most laboratory research missed out on critical information which could only be gained by studying children and adults in natural contexts. In addition, Bronfenbrenner (1979) stated that a great deal of laboratory-based research could not be generalized to the everyday contexts in which humans live and grow.

When psychologists examine the effects of an environment on children, this environment is typically construed in a very static and narrow fashion – often as the child's immediate surroundings. In contrast, Bronfenbrenner (1989) viewed the environment as a dynamic entity which is constantly changing. In Bronfenbrenner's bioecological model of human development, the environment is also conceived of in a very wide sense, as a series of nested structures that extend beyond the child's immediate environment (for example, 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 at the centre of a system which includes four layers, each representing a different aspect of the environment and having a powerful impact on a child's development.

The innermost level is called the **microsystem**. The microsystem is the immediate setting in which a child lives; it refers to their family, peers, and school, as well as the activities, roles, and relationships in their immediate surroundings. In Bronfenbrenner's view, the individual is looked on 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

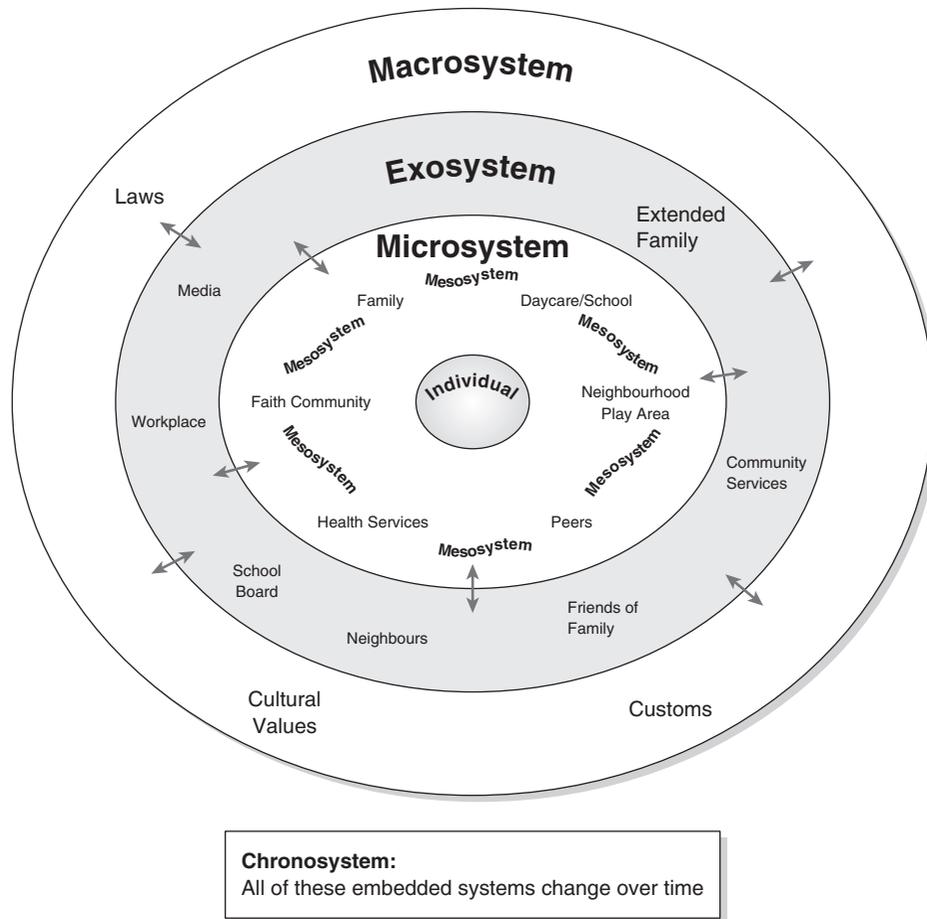
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Figure 2.1 Bronfenbrenner's Bioecological Model of Development

terms of complex, interacting relationships. Long-term bidirectional relationships, such as the relationship between a child and her parents, tend to have a stable and enduring effect on children's development (see, for example, Collins et al., 2000).

The second level of Bronfenbrenner's model is called the **mesosystem**. It refers to relationships among microsystems, such as the home, school, neighbourhood, and child care centre. One could think about the mesosystem as the connections which bring together the different contexts in which a child

develops. For example, learning to read may depend not just on activities that take place in school but also on the extent to which academic learning takes place in the home (Epstein and Sanders, 2002). The African proverb 'it takes a village to raise a child' is accounted for in the mesosystem of a child's life. 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 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 can still have a profound impact on their development. Exosystems include formal settings such as community health services, parks, recreation centres, and city government, and informal groups such as one's extended family, social support networks, and the workplace. These groups can provide important support for families – such as flexible work schedules, paid maternity and paternity leave, or low cost child care – and such support can enhance the development of children. Recent work by the Growing Up in Australia project, a longitudinal study of 10,000 Australian children, has shown that high-quality parental employment conditions that combine family-friendly benefits with security, control, and flexibility maximize both parent and child wellbeing (Strazdins et al., 2006). Negative impacts on development can also result when the exosystem breaks down. For example, British research has shown that families who are affected by unemployment, overcrowding, and poor social networks show an increased incidence of child maltreatment (Sidebotham et al., 2002).

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 profound impacts on later development (Jones and 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 impacts on the lives of children growing up during that period. In these ways and many others, the chronosystem has a powerful influence on development.

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### Research Example 2.1

#### **Bronfenbrenner's Bioecological Model in Action**

Researchers in Ontario, Canada (McDougall et al., 2004) have investigated high-school students' attitudes towards other students with disabilities. Given that acceptance by their peers is one of the primary factors in determining whether a young person with a disability will make the transition to adulthood well (Parker and Asher, 1987), such research is extremely important. The Canadian study used a bioecological framework to investigate how school culture and various student interpersonal factors influenced attitudes among non-disabled students towards fellow disabled students. Participants included 1,872 students aged 12 to 16 years of age from 23 high schools. Students were given a variety of questionnaires assessing everything from perceptions of school culture, peer and teacher relationships, social anxiety, and, of course, attitudes towards peers. The good news was that the majority of students held positive attitudes towards students with disabilities. However, 21 per cent of students held slightly below neutral to very negative attitudes.

A consideration of bioecological factors allowed the researchers to discover some interesting information about why some students held positive as opposed to negative attitudes. If the school culture promoted the learning and understanding of all students rather than social comparison and competition, and if positive student–teacher relationships and high levels of peer support were reported, then attitudes tended to be positive towards students with disabilities. Girls also tended to have more positive attitudes towards disabled peers, as did those students who had a friend or classmate with a disability. Although these findings do shed some light on important micro- and mesosystem-level factors, it is likely that further research could explore other influential variables within these systems, as well as exo- and macro-level systems. For example, how might reforms dealing with how children with disabilities are educated change people's perceptions? Can you think of other variables within Bronfenbrenner's system that might change negative attitudes towards students with disabilities?

#### Life course theory

In a review of his bioecological theory of development, Bronfenbrenner (Bronfenbrenner and 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 argues strongly that human development must be understood in terms of four interdependent principles. First, human lives are situated in an 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 a variety of ways. One of these is through **cohort effects**. A cohort is a group of people born at a particular point in time (for example, '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 effected by the impact of the Great Depression than were older children. Another type of historical effect is called a **period effect**. This happens when an historical event exerts a relatively uniform influence across different birth cohorts. For example, Elder also 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 also notes that geographical settings are often an extremely important factor that is 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 give due 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 one 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

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relationships, romantic relationships, and in various other relationships such as those we have with our co-workers 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 various relationships can 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, a person cannot pursue a career in engineering without the appropriate education, thus, that person's choice of career will be necessarily limited by the education they have chosen to pursue. However, whilst 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, they also note that planning decisions can prove to be a protective process in the long term whereas a 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 bioecological theory, with its emphasis on the importance of the various types of environments which impact on development, and with the principles of Baltes's (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 for 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 emerged 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 number of researchers have put forward theories which emphasize systems thinking (see, for example, Bertalanffy, 1968; Sameroff, 1983; Thelen

and 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 a father, mother, and children. Moreover, the relations of the elements to one another can be described; for example, children will normally obey the mother and father's rules. However, the behaviour of a family can only be truly understood in systems terms, that is, by considering the interrelations among all of the parts, the family's history, and the external influences which may operate to stabilize or destabilize its functioning. In other words, a family's behaviour is more than just the sum of its individual parts.

So, then, what is dynamic systems theory? It can be thought of as an integrated system that connects the child's mind, body and social worlds; this system is dynamic, or constantly changing. Moreover, a change in any one part of the system, whether it be growing taller so the biscuit cupboard is now in reach or meeting a new friend, will result in a state of flux or change. As a consequence of this, the child must reorganize her behaviour so the system works smoothly again (Spencer and Schöner, 2003). 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, 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 and Ulrich, 1991). However, Thelen and Smith would 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) provide 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 it operates under. 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? Very often dynamic systems researchers study children's behaviour

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during periods of transition (Thelen and Corbetta, 2002). Thelen's own research illustrates 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 then later re-emerges. In contrast to those 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 legs making each leg heavier. However, muscle mass is not added at the same rate, meaning the infant is no longer able to physically lift their legs, and 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 have 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 program 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. An infant may desire a toy which is across the room and intend to move towards it. But the state of their neuromuscular system may be such that they cannot yet maintain enough balance to walk upright. Therefore, the infant can employ another solution – crawling – which will allow 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 will develop alternative methods, such as crawling on their bellies or scooting along on their bottoms while using their arms. The development of such alternative strategies depends on an 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. This illustrates two key points in dynamic systems theory: the existence of *interindividual* differences (for example, not all children acquire the ability to walk or talk at the same time or in the same manner) and the

existence of *intraindividual* differences (for example, a child may show unique developmental patterns across domains). Piek (2002) even suggests that a child who shows variability in different areas of development may enjoy a better developmental outcome than a child who displays low variability, or who develops different skills at roughly the same time.

## 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 (Piaget, 1983), Vygotsky's **sociocultural theory** development (Vygotsky, 1978, 1986), and the **information processing theories** of cognitive development (Klahr and MacWhinney, 1998; Siegler, 1996). Given that all these are primarily theories of cognitive development, we will cover them in more detail in Chapter 6. What follows here is a brief summary of each.

### 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 (see, for example, 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 research was largely at odds with the behaviourist tradition which was dominant in North America until the 1960s. Unlike the behaviourists of the day, he 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 (namely, 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 perfectly match reality. 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.

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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 a *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, for example, 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* which is 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, this same theory has come under increasing fire. For example, many developmental psychologists are now 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 (see, for example, Rogoff, 1998). In Chapter 6, we examine Piaget's theory in detail, and consider both its strengths and weaknesses.

#### Vygotsky's Sociocultural Theory of Development

As with 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 a child's social environment was an extremely important force in their development. Vygotsky (1978) believed that it was through social interactions with more experienced and more knowledgeable members of their society – parents, relatives, teachers, peers – that children were 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 followed a particular pattern. Any development occurs at two different levels: children first evidence development in the *interpersonal* interactions that occur between themselves and other people. Only later do children show evidence of development on an individual or *intrapersonal* level. Vygotsky labelled this shift in development from the interpersonal to the intrapersonal level as *internalization*. An example of this can be seen in children's self-talk while problem solving. Children will take the kinds of dialogues that they engage in with parents or teachers (for example, 'Take your time' or 'Be careful') while solving problems and will talk to themselves while working on problems alone. Eventually, this self-talk will be internalized and the child will no longer need to talk out loud.

Finally, Vygotsky noted that parents and teachers will 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, by responding to the child's level of ability and trying to pitch their teaching at a level which is just beyond what the child can do on their own, but is still 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 was 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 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 and MacWhinney, 1998).

Information processing theories are useful for the study of cognitive development in that they require researchers to map out the series of steps which

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Table 2.2 Theories of human development

Theory	Organicism vs. mechanism	Accounts for contextualism?	Discontinuity vs. continuity	Nature vs. nurture
Psychoanalytic Theory	Organismic	No	Discontinuous: emphasizes stages of development which are qualitatively different.	Nature (biological drives) and nurture (role of early experience) both play a role.
Psychosocial Theory	Organismic	Yes	Discontinuous: emphasizes stages of development which are qualitatively different.	Nurture: age-related social demands are the primary determinants of development.
Developmental Task Theory	Organismic	Yes	Discontinuous: emphasizes stages of development which are qualitatively different.	Nature and nurture: some tasks are biologically determined; age-related social demands are the primary determinants.
Behaviourism and Social Learning Theory	Mechanistic	Yes	Continuous: increase in learned behaviours is continuous.	Nurture: principles of learning are based on environmental contingencies.
Ethological Theory	Organismic	Yes	Continuous and discontinuous: learned behaviours increase continuously but critical/sensitive periods may lead to qualitative changes.	Nature (biologically based, instinctive behaviours, genetic factors) and nurture (experience plays an important role in learning) interact.
Evolutionary Developmental Theory	Organismic	Yes	Not clearly specified.	Nature (genetic factors canalize behaviour) and nurture

Table 2.2 (Continued)

Theory	Organicism vs. mechanism	Accounts for contextualism?	Discontinuity vs. continuity	Nature vs. nurture
Bioecological Theory	Organismic	Yes	Not clearly specified.	(experiences play an important role in shaping behaviour). Nature (individual characteristics) and nurture (a variety of environmental influences act on the individual).
Life Course Theory	Organismic	Yes	Discontinuous: age-related demands lead to qualitative developmental change.	Nurture: social demands and environmental influences play an important role in determining development.
Dynamic Systems Theory	Mechanistic	Yes	Continuous and discontinuous elements: learned behaviours increase continuously with the possibility for qualitative reorganizations.	Nature (biological constraints) interacts with nurture (experience in context) to produce developmental change.
COGNITIVE DEVELOPMENTAL THEORIES				
Piagetian Theory	Organismic	No	Discontinuous: emphasizes emergence of stages of development which are qualitatively distinct.	Nature (reflexive behaviours and drive for organization) and nurture (experience with the environment) interact to produce development.
Vygotsky's Sociocultural Theory	Organismic	Yes	Continuous: interactions with more	Nurture: social interactions with others are the

(Continued)

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Table 2.2 (Continued)

Theory	Organicism vs. mechanism	Accounts for contextualism?	Discontinuity vs. continuity	Nature vs. nurture
			competent members of one's culture lead to developmental change in a continuous fashion.	primary influence on development.
Information Processing Theory	Mechanistic and organismic elements	No	Continuous: the development of skills and strategies increases in a continuous fashion.	Not clearly specified.
Developmental Neuroscience	Mechanistic and organismic elements	Yes	Continuous and discontinuous: development proceeds in a continuous fashion until experience-dependent developments result in qualitative changes.	Nature (gene expression) in development is important, but only insofar as it interacts with nurture (experience and maturation).

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 testing. 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 is a wide variety of information processing models of children's cognition, ranging from models of children's developing ability to perform addition problems (Siegler, 1996; Siegler and Jenkins, 1989) to models of children's learning of the rule for making verbs indicate the past tense in English (Klahr

and 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 modelling of performance on everyday tasks such as reading comprehension.

## 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 (for example, infancy or adolescence) or different domains of development (for example, 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 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.

**Bioecological model** is associated with the work of Urie Bronfenbrenner; describes the impact of nested systems on the developing children, from direct influences to broader level societal and cultural factor.

**Chronosystem** is the notion in Bronfenbrenner's theory that development occurs in historical time.

**Classical conditioning** is a process of learning by which a previously neutral stimulus is paired with an unconditioned stimulus to produce a conditioned response is the absence of the unconditioned stimulus.

**Cognitive developmental** theories refer to the development of more advanced thinking across childhood.

**Cohort effects** apply to a group of people born at a particular point in time. Cohort effects events have differential impacts on different birth cohorts.

**Contextualism** refers to the class of developmental theories which take into account the roles of the broader environment, such as society and culture, in

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children's development. **Contextual** approaches also recognize that individuals may behave differently in different environments.

**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.

**Developmental tasks** are critical challenges that occur at regular periods in our development; associated with the work of Robert Havighurst.

**Developmental Task Theory** was developed by Havighurst, who suggested there are critical tasks that occur at certain periods in our lives. The successful achievement of such tasks is required for future happiness and success with later tasks.

**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, this is the part of the personality which 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 zone** is a part of the body which affords pleasure through its 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 (for example, community health services, parks, recreation centres).

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

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

**Infancy** is the earliest period of childhood defined as the period between birth and toddlerhood.

**Information processing theories** are 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 microsystems.

**Microsystem** In Bronfenbrenner's theory, the immediate setting in which a child lives (for example, neighbourhood, school, family).

**Middle childhood** is the period of childhood between approximately 6 and 12 years of age.

**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 those 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 these changes.

**Period effects** occur when an 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 that likelihood of that behaviour reoccurring.

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**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 that 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** is 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.

**Superego** in Freud's theory is the part of the personality which is the internalized values, 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*.

### Test Your Knowledge

- 1 An organismic model of development states which of the following?
  - a) Development occurs in all living things.
  - b) Developmental change happens qualitatively and the individual brings about these changes.
  - c) Developmental change happens quantitatively and the individual brings about these changes.
  - d) The environment impacts on the organism to bring about growth and decline.
- 2 In Erikson's psychosocial theory, intimacy versus isolation is the stage concerned with which of the following?
  - a) Developing a stable and intimate relationship with a parent and occurs early in childhood.

- b) Developing a stable and intimate relationship with a partner and occurs in young adulthood.
  - c) Attachment to important people across the life span.
  - d) The death of those around you in old age.
- 3 Which one of the following research areas is studied by Dynamic Systems Theorists?
- a) Mapping the brain so that we can understand how brain functioning affects behaviour.
  - b) Personality research to explore which children develop into dynamic adults.
  - c) Understanding how microsystems may interact with the individual's macrosystem to produce development.
  - d) Tracing the development of infants' motor skills to understand whether development in these areas occurs at similar or dissimilar rates.
- 4 A common analogy to illustrate the Information Processing Approach is which of the following?
- a) The flow of a stream.
  - b) A computer.
  - c) A brain map.
  - d) A baby's fear for a white rat.
- 5 In Piaget's sensorimotor stage, the child does which of the following?
- a) Thinks about the world through their actions on it.
  - b) Develops motor skills through using their senses.
  - c) Makes the mistake of being egocentric about his or her world.
  - d) Can be likened to a motor in how quickly her senses develop.
- (Note: answers can be found on p. 346.)

## Suggested Reading

- Crain, W. (2004). *Theories of Development: Concepts and applications*. New York: Prentice-Hall.
- Miller, P. H. (2002). *Theories of Developmental Psychology* (fourth edition). New York: Worth.