

chapter 2

Theories and Issues in Child Development

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KEY CONCEPTS

ACCOMMODATION	FUNCTIONAL INVARIANTS	PREOPERATIONAL STAGE
ANIMISM	GENDER CONSTANCY	PRIMARY CAREGIVER
ASSIMILATION	GENDER DEVELOPMENT	PRIMARY DRIVES
BEHAVIOR GENETICS	HARDWARE	PROXIMODISTAL TREND
BEHAVIORISM	HIERARCHY OF NEEDS	PSYCHOANALYSIS
CASTRATION COMPLEX	HUMANISTIC THEORIES	PSYCHOANALYTIC THEORY
CENTRATION	ID	PSYCHOSEXUAL STAGES
CEPHALOCAUDAL TREND	IMPRINTING	PSYCHOSOCIAL STAGES
CHROMOSOME	INFORMATION PROCESSING	REACTION FORMATION
CLASSICAL CONDITIONING	INTROSPECTIONISM	REDUCTIONISM
COGNITIVE ADAPTATIONS	LAW OF EFFECT	SCHEMA
CONCRETE OPERATIONS STAGE	MATURATION	SECONDARY DRIVE
CONNECTIONISM	MECHANISTIC WORLD VIEW	SELF-ACTUALIZATION
CONSERVATION TASKS	MICROGENETIC STUDIES	SENSITIVE PERIOD
CONSTRUCTIVIST THEORY	MONOTROPY	SENSORIMOTOR STAGE
CONTINUITY VERSUS DISCONTINUITY	MOTOR MILESTONES	SOCIAL LEARNING THEORY
CRITICAL PERIOD	NATURE-NURTURE ISSUE	SOFTWARE
DYNAMIC SYSTEMS THEORY	NEURAL NETWORKS	STABILITY VERSUS CHANGE
Ego	OBSERVATIONAL LEARNING	STAGE-LIKE CHANGES IN DEVELOPMENT
Egocentric Thought	OEDIPUS COMPLEX	STRANGE SITUATION
ELECTRA COMPLEX	ONE-TO-ONE CORRESPONDENCE	SUPEREGO
EMOTION	OPERANT CONDITIONING	THEORY OF DEVELOPMENT
ETHOLOGICAL APPROACHES	ORGANISMIC WORLD VIEW	ZONE OF PROXIMAL DEVELOPMENT
FORMAL OPERATIONS STAGE	PRECOCIAL SPECIES	

OVERVIEW

This chapter sets the theoretical background for the material in the chapters to follow. The coverage of theoretical approaches is broad, and will give the reader a good introduction to the diversity of explanations of children's development.

First, different theories of motor development are outlined, and the authors point to the advantages of dynamic systems theory according to which motor development is a product of the interplay between brain structure, the structure and dynamics of the body, and the structure of the environment.

Next, the chapter considers theories of cognitive development. Piaget's stage theory is central here, and receives a thorough treatment. His theory is contrasted with the information-processing account. Whereas Piaget's theory treats early deficits in thought as due to lack of logical ability, information-processing accounts identify processing deficits as the problem, in particular, limitations in memory.

A large number of theoretical approaches stress the social environment in some way or other. Vygotsky's theory treats higher cognitive structures as coming from the social world, becoming internalized as a result of interactions with knowledgeable others. Behaviorist theories are all based on the principle that the social world, and in particular the parents, shape the behavior of the individual, and the best example of application of these accounts to child development is the social learning theory of Albert Bandura.

Other theories have their origins in evolutionary theory, and the best example in developmental psychology is attachment theory, originally formulated by John Bowlby, according to which formation of a secure emotional attachment between infant and caregiver is a vital prerequisite for emotional stability. Attachment theory is closely related to psychoanalytic approaches, the prime example being Freud's theory of psychosexual development, according to which emotional problems in adulthood can be traced to problems the child encountered in one of the psychosexual stages. Humanistic theories bear certain similarities to psychoanalytic theory. For instance, Maslow's account proposes a hierarchy of needs that humans must achieve to reach a satisfactory adult state.

The authors summarize the sections on theories by pointing out, through examples, the fact that different theories are not necessarily mutually exclusive. Often, one theory explains some aspects of behavior, while another theory fills in more of the story.

The chapter ends by summarizing some key issues that will reappear in the pages that follow, namely the nature–nurture issue, stability versus change, and continuity versus discontinuity in development. Different theories very clearly say different things with respect to these distinctions, and the challenge for developmental psychology is to weigh these different accounts against each other.

THEORIES IN CHILD DEVELOPMENT

“Es gibt nichts Praktischeres als eine gute Theorie” – Immanuel Kant (1724–1804)

or . . .

“There is nothing so practical as a good theory” – Kurt Lewin (1944, p. 195)



Introduction

Human development is rich, varied, and enormously complex. We should not expect, therefore, that any single theory of development will do justice to this complexity, and indeed no theory attempts to do this. Each theory attempts to account for only a limited range of development and it is often the case that within each area of development there are competing theoretical views, each endeavoring to account for the same aspects of development. We will see some of this complexity and conflict in our account of different theoretical views, and in chapter 1 we have seen that different ways of studying children lead to different developmental functions, and these are linked with different theoretical views.

Before beginning our account of theories of development it is helpful to say what we mean by a theory, since this is a term that has many definitions. For our purposes a **theory of development** is *a scheme or system of ideas that is based on evidence and attempts to explain, describe, and predict behavior and development*. From this account it is clear that a theory attempts to bring order to what might otherwise be a chaotic mass of information – for this reason we can see that “there is nothing so practical as a good theory”!

In every area of development there are at least two kinds of theory, which we can call the minor and the major. What we are calling *minor* theories are those which deal only with very specific, narrow areas of development. So, for example, there are theories about the way in which eye movements develop, about the origins of pointing, and so on. *Major* theories are those which attempt to explain large areas of development, and it is these that are the focus of this chapter.

To make our account of theories more orderly and understandable, we have divided them into six broad groups:

- Motor development
- Cognitive development
- Social-cognitive development
- Evolution and ethology
- Psychoanalytic theories
- Humanistic theory



Motor Development

One of the most obvious signs of development in infancy is the baby achieving the various **motor milestones**. Parents are very proud of these acquisitions and they are a focus of parental conversations about their infants – “Billy can sit now,” “Helen has just started to crawl,” “Jimmy can walk without help,” “Rachel loves to climb up stairs.” The development of motor skills has very important implications for other aspects of development. The ability to *act* on the world affects all other aspects of development, and each new accomplishment brings with it an increasing degree of independence. For example, when infants begin to crawl they become independently

mobile and one of the major transitions in early development begins. These changes affect emotional and social development, communication, appreciation of heights, and an understanding of distance and space (Campos, Anderson, Barbu-Roth, Hubbard, Hertenstein, & Witherington, 2000).

Table 2.1 charts the sequence of development of various motor milestones during infancy. At birth the infant has a number of well-developed motor skills, which include sucking, looking, grasping, breathing, crying – skills that are vital for survival. However, the general impression of the newborn is one of uncoordinated inability and general weakness. Movements of the limbs appear jerky and uncoordinated, and it takes a few weeks before infants can lift their head from a prone position. The muscles are clearly unable to support the baby's weight in order to allow such basic activities as sitting, rolling over, or standing. By the end of infancy, around 18 months, all this has changed. The toddler can walk, run, climb, communicate in speech and gesture, and use the two hands in complex coordinated actions.

The questions that a theory of motor development needs to explain include the following: Do the early motor activities prepare the way for the more complex voluntary activities that follow, and if so, how do they do it? How do new motor patterns (such as pointing, running, speaking, tool use) develop since they appear to be qualitatively different from earlier patterns? As we shall see, the answers to these questions are complex.

If you look at table 2.1 two things will become apparent. First is that the different motor milestones emerge in a regular sequence – sitting with support, sitting unaided, crawling, standing, walking, and climbing appear almost always in this order. The second is that there is a considerable age range in which individual infants achieve each skill – e.g., some infants crawl at 5 months while others are as late as 11 months. These two aspects of motor development give separate support to the two major theories of motor development that we will discuss here – *maturational theories* and *dynamic systems theory*.




MATURATIONAL THEORIES

One of the first psychologists to investigate human motor development was Arnold Gesell, who studied hundreds of hours of films of motor activity in longitudinal studies of children from birth to 9 years (e.g., Gesell & Ames, 1940). He concluded that motor development proceeded from the global to the specific in two directions. One direction is called the **cephalocaudal trend** and is from head to foot along the length of the body – that is, control of the head is first, then the arms and trunk, and finally control of the legs. The other direction of development is what is called the **proximodistal trend**, which is that motor control is from the center of the body outwards to more peripheral segments – that is, the head, trunk, and pelvic girdle are brought under control before the elbow, wrist, knee, and ankle joints, which in turn lead to finer control over hands and fingers.

These two invariant sequences of development, together with the regular sequence with which the motor milestones are achieved, led Gesell to the view that **maturational** alone shapes motor development – development is controlled by a maturational



Table 2.1 The development of motor skills in infancy

<i>Age</i>	<i>Gross motor skills</i>	<i>Fine motor skills</i>
1–3 months 	Stepping reflex, lifts head, sits with support.	Grasps object if placed in hand, sucks, control of eye movements, the first smile.
2–4 months	When prone lifts head and uses arms for support.	Grasps cube when placed near hand.
5–8 months	Sits without support.	Reaches for and grasps object, using one hand.
9–10 months	Stands with support, and pulls self to stand.	Points at object of interest, grasps with thumb and finger (“pincer grip”).
10–11 months	Crawls.	Grasps spoon, gradually learns to direct food to mouth!
10–14 months 	Stands alone, and walks alone.	Puts objects into small containers, builds “tower” of cubes. Produces first meaningful word.
13–18 months	Walks backwards and sideways, runs, climbs, walks up stairs.	Holds crayon with fingers, scribbles energetically.
18–30 months 	Runs easily, jumps, skips, rides and steers tricycle, walks on tiptoe.	Vocabulary and articulation increases rapidly, picks up small objects (e.g., candy/sweets).

timetable linked particularly to the central nervous system and also to muscular development. Each animal species has its own sequence, and experience has little, if any, effect on motor development.

One of the first researchers to question Gesell's hypothesis was Myrtle McGraw (1945). She tested pairs of twins where one member of each pair received enriched motor training (in reaching, climbing stairs, and other motor skills) and found that in the trained twin motor development was considerably accelerated when compared with the "untrained" twin.

In addition to McGraw's findings there are other considerations which suggest that a purely maturational account of motor development can be largely dismissed. Here are just two such considerations. First, the fact that motor skills develop in a regular sequence does not prove a genetic cause. Consider advanced skills such as learning to play a sport, typing, driving, playing the piano. In these instances we can see an invariant sequence of development, as we progress from simple actions to more complex integrated skillful behavior, but nobody would suggest that these skills are genetically determined! Second, a maturational theory does not account for the considerable individual differences in the acquisition of various motor skills.

Clearly, a different theoretical account of motor development is needed, and here we describe one of the most recent of these, known as the **dynamic systems theory** of motor development.

DYNAMIC SYSTEMS THEORY

What has become apparent is that infants (and children) develop skills in different ways. As an example, there are infants who simply do not like to crawl, and they will often stand and walk before they crawl. Those infants who do crawl will acquire the skill in their own individual ways – some will shuffle on their bellies before crawling on hands and knees, others will skip the belly-crawling stage, and still other infants will forgo the crawling stage entirely, and after several months of sitting and shuffling may stand and then walk (Adolph, Vereijken, & Denny, 1998). In addition to these observations there are what are called **microgenetic studies** of motor development in which experimenters observe individual infants or children from the time they first attempt a new skill, such as walking or crawling, until it is performed effortlessly. From these studies it becomes clear that infants' acquisition of a new motor skill is much the same as that of adults learning a new motor skill – the beginnings are usually fumbling and poor, there is trial and error learning and great concentration, all gradually leading to the accomplished skillful activity, which then is usually used in the development of yet new motor skills.

According to the dynamic systems theory all new motor development is the result of a dynamic and continual interaction of three major factors: (1) nervous system development; (2) the capabilities and biomechanics of the body; (3) environmental constraints and support (Thelen & Spencer, 1998). We can illustrate this dynamic interplay by considering three separate studies on infant kicking, crawling, and walking.



Infant kicking

Esther Thelen (1999) tested 24 3-month-olds on a foot-kicking task in which each infant was placed in a crib in a supine (lying on their back) position and a soft elastic ankle cuff was attached to one leg, and the cuff, in turn, was attached by a cord to a brightly colored overhead mobile. By kicking the leg the babies could make the mobile dance around and they quickly learned to make this exciting event happen. In this condition the *other* leg – the one that was not connected to the mobile movements, either moved independently or alternately with the attached leg.

Then Thelen changed the arrangement by yoking the legs together. She did this by putting ankle cuffs on both legs, and joining the two together with a strip of Velcro. What happened then was that the infants initially tried to kick the legs separately – since moving the legs alternately is the more natural action – but gradually learned to kick both together to get the mobile to move.

This study shows that the infants were able to change their pattern of interlimb coordination to solve a novel, experimentally imposed task.

Infant reaching

Thelen and Spencer (1998) followed the same four infants from 3 weeks to 1 year (a longitudinal study) in order to explore the development of successful reaching. Their aim was to look at the interrelationship between different motor systems. What they found was that infants acquired stable control over the head several weeks before the onset of reaching, then there was a reorganization of muscle patterns so that the infants could stabilize the head and shoulder. These developments gave the infants a stable base from which to reach, and successful reaching followed. This is an indication that infants need a stable posture before they can attain the goal of reaching successfully, and is a clear demonstration that new motor skills are learned through a process of modifying and developing their already existing abilities.

Infant walking

Newborn infants are extremely top heavy, with big heads and weak legs. Over the coming years their body weight is gradually redistributed and their center of mass gradually moves downwards until it finishes slightly above the navel. Adolph and Avolio (2000, p. 1148) put it rather nicely – “It is as if infants’ bodies are growing to fit their comparatively large heads”! This means that as infants and children grow they need constantly to adjust and adapt their motor activities to accommodate the naturally occurring changes to their body dimensions. There can be few clearer demonstrations that the motor system is dynamic and constantly changing than this simple fact.

Adolph and Avolio give a good demonstration of the way in which infants can make adjustments over a very short period of time. They tested 14-month-olds by having them wear saddlebags slung over each shoulder. The saddlebags increased the infants’ chest circumference by the same amount in each of two conditions: *feather-weight* – filled with pillow-stuffing, weighing the negligible amount of 120 g, and *lead-weight* – the not so negligible amount of between 2.2 and 3.0 kg, which increased their body

weight by 25 percent and raised their center of mass (raising the center of mass leads to increased instability and is similar to a backpacker carrying a heavy pack). They found that the lead-weight infants were more cautious, and made prolonged exploratory movements – swaying, touching, and leaning – before attempting to walk down a slope. That is, these infants were testing their new-found body dimensions and weight, and adjusted their judgments of what they could and could not do. These findings are again in support of a dynamic systems approach to motor development – infants do not have a fixed and rigid understanding of their own abilities, and have the dynamic flexibility to adjust their abilities as they approach each novel motor problem.

Summary

Despite the apparent appeal of maturational theories of motor development, research over the last 20 years has demonstrated that motor skills are learned, both during infancy and throughout life. The apparently invariant ordering of the motor milestones is partly dictated by logical necessity – you can't run before you can walk! – and is not necessarily invariant (you *can* walk before you can crawl!). From a consideration of the studies described above it becomes clear that motor development cannot be accounted for by any maturational theory. These and other findings contribute to the “emerging view of infants as active participants in their own motor-skill acquisition, in which developmental change is empowered through infants' everyday problem-solving activities” (Thelen, 1999, p. 103).

The emphasis on children as active participants in their own development is an essential characteristic of the theoretical views offered by “the Giant of Developmental Psychology,” Jean Piaget, whose claim was that children's ability to act on the world underlies their cognitive development, and we now turn our attention to his views.



Cognitive Development: Piaget's Theory of Development

Everyone knows that Piaget was the most important figure the field has ever known . . . (he) transformed the field of developmental psychology. ***(Flavell, 1996, p. 200)***

Once psychologists looked at development through Piaget's eyes, they never saw children in quite the same way. ***(Miller, 1993, p. 81)***

Piaget's contribution to our understanding of children's development has been quite extraordinary, and his influence is reflected in this book – in particular chapters 5 (infancy), 8 (early and middle childhood), 15 (adolescence), and 17 (education). In order to see why he had such an impact we will first outline the state of developmental psychology before Piaget, and then outline some of the fundamental aspects of human development that he described which changed our view of development. We follow



this with a brief account of the **stages of development** that he described, and finally give an overview of his enormous contribution to developmental psychology.

DEVELOPMENTAL PSYCHOLOGY BEFORE PIAGET

Before Piaget revolutionized our understanding of children's development, psychology was dominated by the influence of the two diametrically opposed theoretical views of **behaviorism** and **psychoanalysis**. Both of these views are discussed later, and for the moment we will restrict our comments to note that, despite the fact that they are strikingly opposed, they share one essential feature, which is that the child is seen as the passive recipient of his or her upbringing – development results from such things as the severity of toilet training and of rewards and punishments. Neither approach gives much credit to the child in shaping his or her own course of development. With Piaget, all this changed.

FUNDAMENTAL ASPECTS OF HUMAN DEVELOPMENT, ACCORDING TO PIAGET

Children are active agents in shaping their own development, they are not simply blank slates who passively and unthinkingly respond to whatever the environment offers them. That is, children's behavior and development are motivated largely *intrinsically* (internally) rather than *extrinsically*.

For Piaget, children learn to adapt to their environments and as a result of their **cognitive adaptations** they become better able to understand their world. Adaptation is something that all living organisms have evolved to do and as children adapt they gradually construct more advanced understandings of their worlds.

These more advanced understandings of the world reflect themselves in the appearance, during development, of new stages of development. Piaget's theory is therefore the best example of the **organismic world view** that we discussed in chapter 1, which portrays children as inherently active, continually interacting with the environment, in such a way as to shape their own development.

Since children are active in developing or constructing their worlds, Piaget's theory is often referred to as a **constructivist theory**. In the next sections we will first discuss the ways in which children adapt to their environments, and next give an account of the stages of development that Piaget put forward.

Adaptation: assimilation and accommodation

In order to adapt to the world two important processes are necessary. **Assimilation** is what happens when we treat new objects, people, and events as if they were familiar – that is, we *assimilate* the new to our already-existing schemes of thought. Examples would be: we meet a new policeman (or doctor, professor, etc.) and treat them as we habitually treat policemen, doctors, or professors. Assimilation occurs from the earliest days – the infant is offered a new toy and puts it in his or her mouth to use the

familiar activity of sucking; the child meets a new teacher and treats her in the same way he or she treats teachers.

Accommodation is where individuals have to modify or change their **schemas**, or ways of behaving and thinking, in order to adjust to a new situation. For example: the infant might be presented with a toy that is larger than those she has previously handled, and so will have to adjust her fingers and grasp to hold it; when the child meets a new teacher who is different from her previous teachers she has to adjust her way of thinking to understand the new person. It is worth stressing that assimilation and accommodation always occur together during infancy and the examples given above are both cases of assimilation and accommodation occurring together.

Throughout life the processes of assimilation and accommodation are always active as we constantly strive to adapt to the world we encounter. These processes, therefore, are what can be called **functional invariants** in that they don't change during development. What do change are the cognitive structures (often called schemas) that allow the child to comprehend the world at progressively higher levels of understanding. According to Piaget's view, there are different levels of cognitive understanding that take the child from the activity-based sensorimotor functioning in infancy to the abstract levels of thought found in adolescence.

THE FOUR STAGES OF COGNITIVE DEVELOPMENT

Children move through four broad stages of development, each of which is characterized by qualitatively different ways of thinking (Piaget, 1962). These stages are the **sensorimotor stage** of infancy, the **preoperational stage** of early childhood, the **concrete operations stage** of middle childhood, and the **formal operations stage** of adolescence and beyond. We will give a brief account of each of these stages, together with the approximate ages at which they are found – note that these ages are only approximate and individual children's development will often be slower or quicker.

Sensorimotor period (birth to 2 years)

This is one of the most impressive and dramatic areas of development. The child changes from the helpless newborn to the thinking and knowing toddler, that is, to the cognitive individual with a "mind." These changes take place as a result of the infant's actions on the objects and people in its environments, and this stage is the development of *thought in action*. As a result, infants learn to solve problems, like pulling a cloth to obtain an out-of-reach toy (plate 2.1), and they learn that objects continue to exist even though they cannot be seen or heard. As the stage draws to a close the infant, now a toddler whose language is developing rapidly, is able to reason through thought as well as through action.

Preoperational stage (2 to 7 years)

Preschool children can solve a number of practical, concrete problems by the intelligent use of means-ends problem-solving, the use of tools, requesting objects, asking for things to happen, and other means. They can communicate well and represent



Plate 2.1 Around 9 months the infant is able to pull a cloth (a) in order to retrieve an out-of-reach toy (b), and therefore shows efficient means-ends problem-solving.

information and ideas by means of symbols – in drawing, symbolic play, gesture, and particularly speech.

These abilities continue to develop considerably during the preoperational stage, but there are some striking limitations to children's thinking during this period. Children tend to be **egocentric** (find it difficult to see things from another's point of

view). They display **animism** in their thinking (they tend to attribute life and lifelike qualities to inanimate objects, particularly those that move and are active, such as the wind and the clouds, and sometimes trees and other objects). Here is Piaget asking a child about the sun, which follows you around as you move: *Piaget* – “Is it alive?” *Child* – “Of course, otherwise it wouldn’t follow us, it couldn’t shine” (Piaget, 1960, p. 215). Their thinking tends to be illogical, and at times seems quite magical – it is at this stage that children believe in Santa Claus! What underlies children’s thinking during the preoperational stage is the lack of a logical framework for thought, and this appears during the concrete operations stage.

Concrete operations stage (7 to 11 years)

One major characteristic of preoperational thought is called **centration** – the focusing or centering of attention on one aspect of a situation to the exclusion of others. This is clearly demonstrated in Piaget’s **conservation tasks**. A typical conservation problem, known as conservation of number, is shown in plate 2.2. In this version of the problem the child is shown two rows of candies/sweets, such as M & Ms or Smarties, in **one-to-one correspondence** and with each having six candies. The child is simply asked “Look what I do” and is not questioned about the number in each row. Then, while the child watches, one M & M or Smartie is added to one row so that it has seven. Next, the other row is stretched out so that it *looks* as though it has more, but in reality it has less.

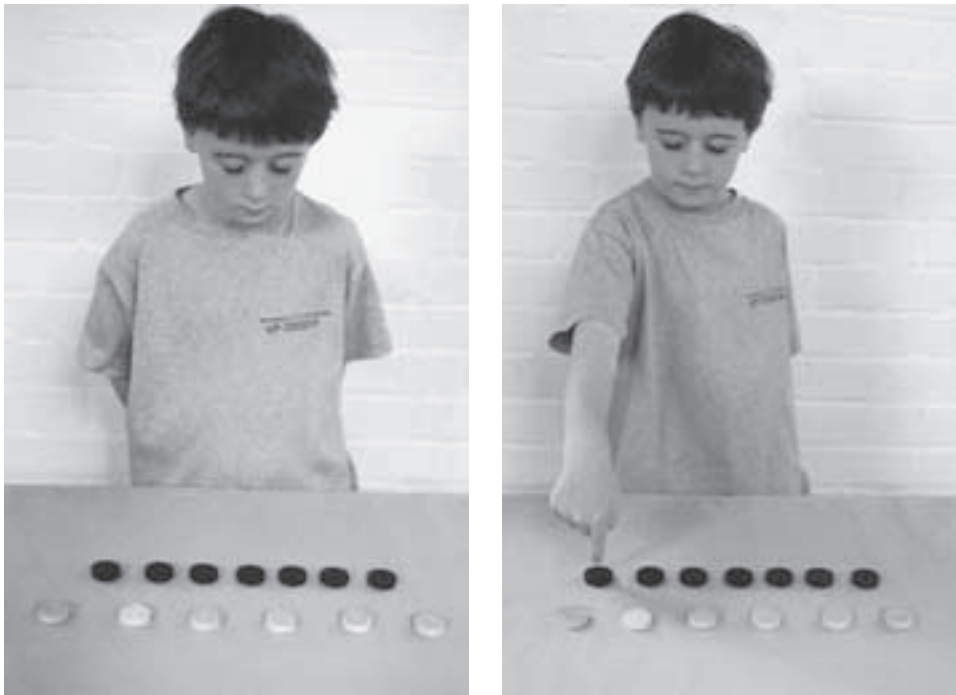


Plate 2.2 Conservation of number – which row contains more?



Then the child is asked “Which row would you like?” Preoperational children will usually ask for the longer row – they focus on the increase in length and ignore the addition of one candy/sweet to the other row. However, the child at the concrete operations level knows that one has been added to the shorter row, and since nothing has been subtracted by the action of stretching out the other row, knows that the shorter row contains more – and will therefore ask for the shorter row. If you have access to a 4- and a 7-year-old and are allowed to give them candies/sweets, then this is an interesting experiment to do with both of them – the younger child will want the longer row, and the older child the shorter, and neither understands the reasoning of the other!

The concrete operational child becomes better at a number of tasks, in addition to conservation, and these are discussed in detail in chapter 8.

The formal operations stage (from about 11 years)

The concrete operational child becomes able to solve many problems involving the physical world, but the major limitation in his or her thinking is to do with the realm of possibilities. When children enter the final stage of cognitive development – the formal operations stage – this limitation is removed. The adolescent now becomes able to reason in the way that scientists do – to manipulate variables to find out what causes things to happen – and is also introduced to the realm of possibilities and hypothetical thought. Adolescents (and adults) spend many hours discussing abstract matters – Does God exist? – Why do we need politics? – Should abortion be allowed? – What is the meaning of life? A more detailed account of adolescent thinking is given in chapter 15.

Summary

In Piaget’s theory we have a comprehensive and detailed account of cognitive development from birth to adulthood. Cognitive development proceeds through a series of stages, each more complex than the last, and each building on the achievements of the previous. In many respects, aspects of Piaget’s theory seem obvious – of course children are active in shaping their own development. But it was many years before his theories began to make an impact on American and British psychology. This was primarily due to three factors. First, American and British psychology was dominated by the theoretical school of thought known as behaviorism, which offered the **mechanistic world view** that the child is inherently passive until stimulated by the environment, and so the opposing view offered by Piaget took time to be accepted. Second, Piaget only ever wrote in French, which made his work less accessible to the English-speaking psychologists. And third, while Piaget was a brilliant thinker, his writings are often extraordinarily complex and difficult to understand!

Piaget’s full impact awaited the arrival of one man who could summarize, synthesize, and present his theoretical views in a way that was comprehensible and available to the English-speaking world. This was John H. Flavell, whose *The Developmental Psychology of Jean Piaget* appeared in 1963 (and in the foreword to this book Piaget wrote, “I am not an easy author; hence it must have required an immense effort at comprehension and intellectual empathy to have produced the clear and straightforward

presentation that is found here”). Recently, Flavell (1996) wrote an assessment of Piaget’s contribution, entitled “Piaget’s legacy,” and quotes an anonymous reviewer of his article – “The impact of Piaget on developmental psychology is . . . too monumental to embrace and at the same time too omnipresent to detect,” to which Flavell simply adds the words “I agree.”



Cognitive Development: Information-Processing Approaches

Information-processing approaches view the human mind as a complex system through which information flows. There is not one single, unified theory, but most theoretical views that adopt this approach suggest that there are at least three components of the mental system. First, information is received from the environment and *encoded* in some form. Next, a variety of internal processes, such as memory storage, problem-solving strategies, or relating new information to existing knowledge, act on the information and transform it. Finally, the individual is able to change their cognitive structures in order to act on the information. Thus, as development progresses children’s knowledge of the world advances, their awareness of their own abilities and limitations increases, and they develop increasingly improved ways of acting on the world.

As a consequence of these activities two broad aspects of the mind change with age – the **hardware**, that is, the size or capacity of its processing units, allowing the child to comprehend more information at a time, and the **software**, that is, the variety and effectiveness of the strategies and action capabilities that allow more efficient use of the information. The terms *hardware* and *software* are an indication that information-processing accounts of cognitive development are based, at least loosely, on computer programming models.

The notion of information flow suggests that information passes smoothly through the mind (or the cognitive system), rather than in discrete or separate steps or stages. Many complex activities illustrate this continual flow – when we are riding a bicycle perceptual, memory, balance, and motor information operate in synchrony to keep us on the road or track, and this is done effortlessly by the skilled rider. Other tasks also illustrate this continual flow of information – reading, playing soccer or basketball, holding a conversation, typing.

Information-processing accounts of human cognition include current views of memory formation, with terms such as *encoding*, *storage*, *retrieval*, *strategies*, and *metamemory*, and this account is given in chapter 12. A brief account of information-processing explanations of cognitive changes in adolescence is given in chapter 15.

COMPARING INFORMATION-PROCESSING APPROACHES WITH PIAGET’S APPROACH

Piaget’s theory and information-processing approaches have quite a lot in common. Both attempt to specify children’s abilities and limitations as development proceeds,



and both try to explain how new levels of understanding develop from earlier, less advanced ones.

However, they differ in several important ways. Information-processing approaches place great importance on the role of processing limitations (another computing analogy) in limiting children's thinking and reasoning at any point in time, and also emphasize the development of strategies and procedures for helping to overcome these limitations – clear accounts of these with respect to memory development are given in chapters 12 and 15. Piaget's theory does not discuss processing limitations, but rather discusses developmental changes in terms of the child gradually constructing logical frameworks for thought, such as *concrete operations* and *formal operations*.

Another important difference is that information-processing accounts see development as unfolding in a continuous fashion, rather than in qualitatively different stages as Piaget suggested. To see how this difference might work, consider the child who moves from Piaget's *preoperational stage* to the *concrete operations stage*. When presented with a conservation of number task, the preoperational child centers attention on one aspect of the changed array – the increase in length – and ignores the other, equally important, aspect, which is that in the example given above a candy/sweet has been added to the smaller row. When the child is able to overcome this limitation, he or she moves to the qualitatively different level of thinking that characterizes the stage of concrete operations. An information-processing account, on the other hand, would simply say that the child's processing capacity has increased so that he or she is now able to hold two things in mind simultaneously, so that what underlies the apparently *qualitative* change in thinking is actually a *quantitative* change in processing capacity.

CONNECTIONISM

Connectionism is a modern theoretical approach, which developed from information-processing accounts and uses computer programs to test models of development. It combines biological and computational knowledge. Computers are programmed to simulate the action of the brain and nerve cells (neurons). The programs often create so-called artificial **neural networks** and, although there is an enormous number of such networks in existence, they all have three things in common.

First, the network is given some initial constraints or guides to learning. This is typically a starting point that represents innate abilities or a particular level of development. Second, the network is given an *input* that represents the experiences a child might have. Third, the neural network acts on the input in order to produce an *output*, which should resemble the sort of learning seen in real life.

Through the construction of such models, connectionists (advocates of connectionism) hope to gain insights into the way in which learning and development take place in the real world, and how the physiological processes taking place in the brain result in a given behavior, or in changes of behavior. Connectionist models have been applied to many areas of child development, e.g., perception, attention, learning, memory, language, problem-solving, and reasoning. Readable accounts of these complex models and their application to children's cognitive development are given by Karmiloff-Smith (1999), Mareschal (2000), and Plunkett (2000).



Social-Cognitive Development

Whereas Piaget tended to focus on the individual child attempting to make sense of the world (given some basic tools), other researchers have been interested in the interaction between the child and his or her community – the social environment.

VYGOTSKY

The Russian psychologist Lev Semenovich Vygotsky (1896–1934), born in the same year as Piaget, was one of the first to recognize the importance of knowledgeable adults in the child's environment. For him, the development of intellectual abilities is influenced by a *didactic* relationship (one based on instructive dialogue) with more advanced individuals. One fascinating facet of his work is the claim that higher mental abilities are first encountered and used competently in social interactions, only later being internalized and possessed as individual thought processes. For instance, language is used socially to quite a level of competence before it is internalized, reorganizing thought in the process.

Thus, a major theme in Vygotsky's theories is that social interaction plays a fundamental role in cognitive development. He argued that there is a gap between what the child knows and what he or she can be taught. At a given stage of development the child has a certain level of understanding, a temporary maximum. A little beyond this point lies the **zone of proximal development**. This zone can be seen as representing problems and ideas that are just a little too difficult for the child to understand on his or her own. It can, however, be explored and understood with the help of an adult. Thus the adult can guide the child because he or she has a firmer grasp of the more complex thinking involved.

Vygotsky died young (from tuberculosis) but he left an impressive amount of work (over 100 published articles and books) which continues to have an impact on developmental psychology. His contribution to education is discussed in detail in chapter 17.

BEHAVIORISM AND SOCIAL LEARNING THEORY

Early behaviorism

Toward the end of the nineteenth century, psychology experienced a swing away from the subjective perspective of **introspectionism** (the analysis of self-reported perceptions) toward a more objective method. This scientific approach to psychology had its roots in the work of Vygotsky's countryman, Ivan Petrovich Pavlov (1849–1936). Pavlov developed a grand theory of learning called **classical conditioning**. According to this theory, certain behaviors can be elicited by a neutral (normally unstimulating) stimulus simply because of its learned association with a more powerful stimulus. For example, when food was presented to dogs at the same time as a bell, the bell would eventually cause a salivation response when presented on its own. The dogs learned an *association* between the two. This principle of conditioning is applicable to much



human behavior – you might find yourself salivating when the dinner bell sounds, or when you smell the cooking!

Many psychologists seized upon his ideas. Because of its fundamental nature, Pavlov's work had the potential to explain all forms of human behavior and its development. It was combined with other theoretical notions such as Thorndike's **law of effect** (the likelihood of an action being repeated is increased if it leads to reward, and decreased if it leads to punishment), and **behaviorism** was born. With this, the pendulum swing toward objectivity was complete. In its most radical form – as espoused by early behaviorist John Watson (1878–1958) – behaviorism denies the role of the mind as an object of study and reduces all behavior to chains of stimuli (from the environment) and the resulting response (the behavior). Some took this very seriously indeed, and ascribed the mind's "inner voice" to a subvocal tremor of the larynx. One behaviorist administered himself a muscle-relaxing nerve toxin in order to find out, but, despite his condition, his mind remained active along with his scientific zeal.

The early behaviorists' view of child development is quite simple. The infant is born with little more than the machinery of conditioning, and infancy and childhood consists of constant warping and molding under pressure of the environment. The child is passive and receptive and can be shaped in any direction. This view was clearly expressed by Watson (1970, p. 94):

Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in and I'll guarantee to take any one at random and train him to become any type of specialist I might select – doctor, lawyer, merchant-chief and yes, even beggar-man and thief, regardless of his talents, penchants, tendencies, abilities, vocations, and race of his ancestors.

Any behaviors – even the most elaborate, like language – are towers built upon the foundations of very simple, repeated connections between a stimulus and its response. This has been termed a **reductionist** perspective because it reduces ostensibly complex phenomena to simpler core processes.

B. F. Skinner's behaviorism

Any discussion of behaviorism would not be complete without the inclusion of Burrhus Frederic Skinner (1904–90). He had an effect on his area of psychology perhaps greater than any other individual (and during his lifetime was regularly in the list of the ten most famous Americans). Whilst the early behaviorists emphasized the passive nature of the child, Skinner envisioned a more active role. **Operant conditioning** differs from *classical conditioning* because children operate (emit behaviors) on their environments. It is still the case that the child's development is dominated by his or her environment, but Skinner's viewpoint allowed for more flexible and generative patterns of behavior. According to Skinner's view, it is possible to shape the animal's or child's behavior by manipulating the reinforcement received.

We can see the role of reinforcement in this brief account of infant behavior (Skinner, 1961, p. 418):

One reinforcer to which babies often respond is the flashing on and off of a table lamp. Whenever the baby lifts its hand, flash the light. In a short time a well-defined response will be generated. (Human babies are just as “smart” as dogs or pigeons in this respect.) Incidentally, the baby will enjoy the experience.

It is certainly the case that our behavior is guided by reward and punishment, and behaviorism continues to be used in the control of behavior. Skinner gave an account of how parents may unwittingly promote undesirable behaviors, such as aggression, crying, or shouting in their children. If, for example, the mother only gives the child attention when he or she is misbehaving, then the mother’s positive reinforcement of attention is likely to promote the very behavior she does not want! The remedy is this (Skinner, 1961, p. 419):

The remedy in such a case is simply for the mother to make sure that she responds with attention and affection to most if not all the responses of the child which are . . . acceptable . . . and that she never reinforces the annoying forms of behavior.

Social learning theory

Whereas behaviorism had important but rather vague things to say about the child’s acquisition of behavior patterns, the work of Albert Bandura (1925–) examined particular behaviors in more detail. His behaviorism was less mechanistic than that of Skinner. He did not focus only on observable behavior, but posited processing that occurred within the mind – a construct specifically denied by his behaviorist colleagues. His approach was initially named *sociobehaviorism*, then *social cognitive theory*, and finally **social learning theory**.

During the 1960s Bandura carried out a series of experiments on childhood aggression. In one, some children were divided into two groups. The first (“control”) group saw a film of an adult playing with toys, one of which was an inflatable “Bobo” doll. The second (“experimental”) group saw a film of the same adult, this time playing aggressively with the toys, hitting the doll with a hammer. When allowed to play individually, Bandura observed that children from the experimental group behaved in a more aggressive way toward their own Bobo doll.

So, without obvious reinforcement, a particular aggressive behavior had been reinforced. Bandura termed this **observational learning** or “vicarious conditioning.” In some sense, the child had *mentally* assumed the role of the observed person and taken note of any reinforcement. Bandura concluded that children imitate the actions of others, based on perceived reinforcement. He followed up the Bobo-doll experiment with investigations into cartoon and film violence. The findings were clear: children imitated the aggressive behavior.

Bandura’s approach kept the essential components of behaviorism – that we learn by reinforcement and punishment of behavior, in accord with the law of effect – and added the important dimension of learning by observation. Adults and others in the child’s life provide models, and learning by imitation is extremely common in all areas of social and cognitive development.



Evolution and Ethology

EVOLUTION

The theoretical basis of any evolutionary theory of development is, of course, evolution itself. The present form of the theory is largely identical to that developed by its founder, Charles Robert Darwin (Darwin was born on February 12, 1809 – the same day as Abraham Lincoln – and died on April 19, 1882). Perhaps the most important unit in evolution is the *gene*, which is the basic genetic material out of which **chromosomes** are formed. The term gene is also used in a vague way when talking about any heritable characteristic of an organism: eye color, intelligence, or an inherited behavior. When a set of genes leads to an overall advantage for an organism, the organism tends to produce more copies of itself. Those genes, therefore, will become more frequent in the *gene pool*. When a set of genes leads to an overall disadvantage, those genes will become less frequent. This means that as evolution proceeds any gene still in the gene pool will tend to be advantageous. The difficult concept to master is to remember that this should apply to behaviors as well as physical characteristics.

Evolutionary theories of child development that emphasize the genetic basis of many behaviors, and point to the adaptive and survival value of these behaviors, are known as **ethological approaches**.

THE ETHOLOGICAL APPROACH

The origins of ethology can be traced back to Darwin, and its modern foundations were laid by two European zoologists, Konrad Lorenz (1903–89) and Niko Tinbergen (1907–88), who pioneered the genetic analysis of development. They reasoned that certain behaviors in the young of many species would be genetic in origin because they (1) promote survival and (2) are found in many species, including humans. One such behavior is **imprinting**, which refers to the tendency of the newborn or newly hatched of **precocial species** of animals (which includes ducks, geese, sheep, horses) to follow the first moving objects they see. This behavior involves the formation of an attachment between the infant and the mother. Clearly, imprinting is *adaptive* (adds to survival value) because it leads to a physical proximity between parent and offspring. As a consequence, the parent is always at hand to feed, give warmth, protect from predators, and generally attend to the offspring.

Lorenz is famous for his experiments with young geese (goslings). He demonstrated that if the first moving object they saw after hatching was him, then the unwitting goslings would imprint on him and follow him around (and even, as adults, attempt to mate with him!).

There are two implications of ethology's conception of behaviors. The first is that, for the most part, they require an external stimulus or target. For example, imprinting needs a target "parent" – if this target does not exist, imprinting will either not take place, or will take place with an inappropriate target (cf. Lorenz's goslings). The second

implication is one of time. Originally, ethologists envisioned a **critical period**, this being the length of time for the behavior to grow to maturity in the presence of the right conditions (e.g., language developing in a rich linguistic environment). When this critical period expires, the behavior cannot develop. These days, the evidence points toward a **sensitive** rather than critical period; behaviors may take root beyond this sensitive time period, but their development may be difficult and ultimately retarded.

EMOTIONAL DEVELOPMENT

Attachment theory – John Bowlby and Mary Ainsworth

Mother love in infancy and childhood is as important for mental health as are vitamins and proteins for physical health. (*Bowlby, 1952*)

The British physician and psychoanalyst John Bowlby was inspired by observations of imprinting, and was one of the first to offer an ethological and evolutionary interpretation of human development. His contribution to our understanding of attachment formation in infancy and childhood continues to have an immense impact, and here we will give a very brief account of his views, and those of his American colleague, Mary Ainsworth.

Prior to Bowlby the prevailing belief, stemming from behaviorism, is that the attachment of infants to their caregivers was a **secondary drive**, that is, because the mother (or **primary caregiver**) satisfies the baby's **primary drives** (these include hunger, thirst, and the need for warmth), she acquires secondary reinforcing properties. However, Bowlby pointed out that the need for attachment was itself a primary drive (as the quote given above indicates, which is the conclusion to his 1952 report to the World Health Organization).

Several lines of evidence have since supported this conclusion. In the 1950s and 1960s Harry Harlow and his colleagues (e.g., Harlow & Zimmerman, 1959) separated baby monkeys from their real mothers and offered them two surrogate (substitute) "mothers." One of these was made of wire, but had a nipple attached which provided food (and hence satisfied the primary drives of hunger and thirst). The other was made of soft cloth and provided no nutrition. What they found is that the baby monkeys fed from the "wire mother," but cuddled up to the "soft cloth mother," and ran to "her" when frightened by loud sounds. It therefore seemed reasonable to conclude that the "soft cloth mother" provided what we can call *contact comfort*, and satisfied a basic or primary need.

Bowlby argued that there is an innate, instinctual drive in humans to form attachments that is as strong as any other primary drive or need. He put forward the principle of **monotropy**, which is the claim that the infant has a need to form an attachment with one significant person (usually the mother). This claim was later found to be overstated, because Rudolph Schaffer (the author of chapter 7 of this book) and Peggy Emerson (1964) found that infants often formed multiple attachments, and that in some cases their strongest attachment was to people such as the father,



Plate 2.3 Infants will usually form multiple attachments.

a grandparent, or peers, who did not fulfill basic caregiving activities, but who did engage in satisfying interactions (“quality time”) with them (see plate 2.3).

Bowlby believed that the attachment system between infant and caregiver became organized and consolidated in the second half of the infant’s first year from birth, and became particularly apparent when the infant began to crawl. At this time, infants tend to use the mother as a “safe base” from which to begin their explorations of the world, and it then becomes possible to measure how infants react to their mother’s departure and to her return. For these measures we are indebted to Mary Ainsworth, who trained with Bowlby and who invented what is commonly called the **strange situation**. In this situation a baby (usually around a year old) and his or her mother enter an experimental room in which there are several toys. The mother sits on a chair and after a short while a stranger enters, at which point the mother leaves, only to return a few minutes later. An observer then notes the infant’s response to several events – when the stranger enters, when the mother leaves, and when she returns.

Using the strange situation, Ainsworth discovered that there are several attachment “styles” that differ in degree of security. A detailed account of these attachment styles and of Bowlby’s and Ainsworth’s contribution in developing what is called *attachment theory* is given in chapter 6. For the moment we can conclude that their significance has been in demonstrating the importance of early secure attachments and showing that these attachments are as basic and necessary as any other human drive or motivation.



Psychoanalytic Theories

SIGMUND FREUD: THE FOUNDER OF PSYCHOANALYSIS

For generations almost every branch of human knowledge will be enriched and illuminated by the imagination of Freud.

(Jane Harrison, 1850–1928)

His place is not, as he claimed, with Copernicus and Darwin, but with Hans Christian Anderson and the Brothers Grimm, tellers of fairy tales.

(Hans Eysenck, 1916–97)

As will be apparent from the above, not everyone agrees that Freud's contribution to knowledge has been entirely positive! Freud claimed that much of our behavior is determined by unconscious forces of which we are not directly aware. In presenting his **psychoanalytic theory**, he suggested that there are three main structures to personality, which are the **id**, the **ego**, and the **superego**. The id is present in the newborn infant and consists of impulses, **emotions**, and desires. It demands instant gratification of all its wishes and needs. Since this is impractical, the ego develops to act as a practical interface or mediator between reality and the desires of the id. The final structure to develop is the superego, which is the sense of duty and responsibility – in many ways the conscience.

The ego and the superego develop as the individual progresses through the five **psychosexual stages** – oral, anal, phallic, latency, and genital – and these are described next.

THE FIVE PSYCHOSEXUAL STAGES

Oral stage (approximately birth to 1 year)

The infant's greatest satisfaction is derived from stimulation of the lips, tongue, and mouth. Sucking is the chief source of pleasure for the young infant.

Anal stage (approximately 1 to 3 years)

During this stage toilet or potty training takes place and the child gains the greatest psychosexual pleasure from exercising control over the anus and by retaining and eliminating feces.

Phallic stage (approximately 3 to 6 years)

This is the time when children obtain their greatest pleasure from stimulating the genitals. At this time boys experience the **Oedipus complex**. This expression derives from the Greek myth in which Oedipus became infatuated with his mother. In the Freudian account the young boy develops sexual feelings toward his mother but



realizes that his father is a major competitor for her (sexual) affections! He then fears castration at the hands of his father (the **castration complex**) and, in order to resolve this complex, he adopts the ideals of his father and the superego (the conscience) develops. If we return to Greek mythology, the noblewoman Electra remained obsessively bound or fixated to the memory of her father Agamemnon. In the Freudian account, for little girls the **Electra complex** is when they develop feelings toward their father and fear retribution at the hands of their mother. They resolve this by empathizing with their mother, adopting the ideals she offers, and so the girl's superego develops.

Latency and genital stages (approximately 6 years to adolescence)

From around 6 years the torments of infancy and early childhood subside and the child's sexual awakening goes into a resting period (*latency*, from around 6 years to puberty and adolescence). Then, at adolescence, sexual feelings become more apparent and urgent and the genital stage appears. In the latter "true" sexual feelings emerge and the adolescent strives to cope with awakening desires.

PROBLEMS WITH FREUDIAN THEORY

One of the main claims of Freudian theory is that much of what motivates us is determined unconsciously. By their very nature unconscious processes cannot be measured, and so it is often claimed that belief in Freudian ideas is precisely that – beliefs and not facts. It is certainly the case that Freud's views are almost impossible to test. To illustrate this, consider the Freudian notion of **reaction formation**. If you are harshly toilet trained as a child then the Freudian prediction would be that you become "anally retentive," that is, you become excessively neat and tidy. However, if in some way you recognize this in yourself (maybe even unconsciously), then you can react against it (i.e., *reaction formation* occurs) and you actively become very untidy! What this means is that you can react against your upbringing and reverse the effects, which means in turn that it is impossible to predict the child's development despite the fact that the first 6 years from birth are supposedly critical in determining later personality formation.

PSYCHOANALYSIS, THEN AND NOW: AN OVERVIEW

Freudian theory has been of immense importance in telling us two things. One is that early childhood can be tremendously important in affecting and determining later development (a position also adopted by people such as Bowlby, whose views are given above), and the other is that we can be driven by unconscious needs and desires of which we are not aware. Thus, if we did not go through one of the childhood psychosexual stages very well, then this could reflect itself in later adult disorders such as neurotic symptoms, but we would not be aware of the causes of the problem. The only way to come to terms with this would be intensive sessions of psychoanalysis in which the analyst tries to discover what it is that went wrong in your childhood that is causing your current problems.

The theory is largely unsupported by scientific evidence. Thus, there is little evidence that the Oedipus and Electra complexes occur. Additionally, if events occurring in early childhood can have different outcomes (as a result of reaction formation), then it is impossible to make clear predictions about the effects of early experiences. Nevertheless, there are many who believe that psychoanalytic theories are important in understanding human development, and there have been many theoreticians who have offered variations and alternatives to Freud's proposals. We briefly consider two of these next, Anna Freud and Erik Erikson (for a full treatment of psychoanalytic accounts of adolescence, see chapter 16).

MODERN PSYCHOANALYSTS: ANNA FREUD AND ERIK ERIKSON

Anna Freud (1895–1982) was the youngest of Sigmund Freud's children. She grew up with an interest in psychoanalysis, and is often referred to as “the founder of child psychoanalysis.” She felt that adolescence and puberty presented a series of challenges. During this period of ego struggle, through meeting these challenges the ego matures and becomes better able to defend itself. For Erik Erikson (1902–94), like Anna Freud, personality formation was not largely complete by age 6 or 7 as Sigmund Freud suggested. Rather, stages of psychological conflict and adjustment occur throughout the lifespan. Whereas Freud felt that the child's personality was determined largely by parents and by unconscious forces, Erikson gave much greater emphasis to the role of the broader social world which includes relatives, friends, society, and culture. For this reason Erikson's stages are called **psychosocial** rather than *psychosexual*. The work of Anna Freud and Erikson as it applies to adolescent development is discussed in more detail in chapter 16.



Humanistic Theory: Abraham Maslow

Humanistic theories focus on the individual's own subjective experiences, motives, and desires. In general, they differ from psychoanalytic views in putting much less emphasis on the role of the unconscious in determining behavior. Humanists argue that we are not driven by unconscious needs, neither are we driven by external environmental pulls such as reinforcement and rewards. Rather, humans have free will and are motivated to fulfill their potential. The inner need or desire to fulfill one's potential is known as **self-actualization**. The drive for self-actualization is not restricted to childhood but is applicable across the lifespan, and a leading proponent of the humanistic view was Abraham Maslow (1908–70).

ABRAHAM MASLOW'S HIERARCHY OF NEEDS

Maslow suggested that there is a **hierarchy of needs** or motives that determine our behavior. The hierarchy is given in figure 2.1 and extends from the basic needs for survival through the search for self-actualization. One interesting and unusual aspect of his

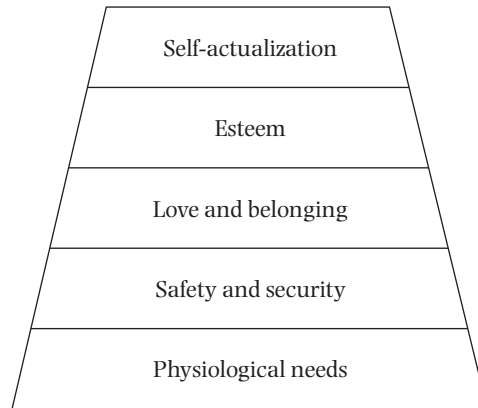


Figure 2.1 Maslow's hierarchy of needs.

theory is that it was based on data collected only from women – unusual in that Maslow was only 24 years old at the time and he quizzed 140 young women (from 18 to 28 years) about the intimate details of their sex lives (Alimo-Metcalf, 2001, pp. 179–80):

The subject of the interview included: sex drive; presence or absence of technical virginity; history of promiscuity; frequency and intensity of climax in heterosexual relations; ease of excitability; number of everyday objects regarded as sexual stimuli; and so on.

From these structured interviews Maslow was able to relate the women's experiences to self-actualizing behaviors. To see how Maslow's hierarchy might work, imagine the following scenario (based on Dworetzky, 1995, p. 43). A young man arrives as an emigrant/immigrant to a foreign country, broke and homeless. His first aim would be to ensure that his basic physiological needs for food, water, and warmth were satisfied. Next would be finding a place where he felt safe and secure. He is then able to begin to search for ways of satisfying his psychological needs, to develop relationships with people so he feels that he belongs. His sense of self-esteem develops as he feels needed by others, and his final goal would be to attain self-actualization – this is equivalent to achieving his full potential, perhaps in education, sport, music, rearing children, and many other types of activity and attainment.

Maslow's theory was not intended as a theory of children's development – the hierarchy of needs is applicable at all ages from early childhood on, and children achieve goals and fulfill their potential as do adults. It is worth noting that, sadly, there are over 100 million child slaves in the world today – children who work in the fields, in domestic slavery, in bars, restaurants, on building sites, in sweatshops perhaps making expensive (or cheap) clothes and shoes for western consumption, and in many countries the prettiest children are raised in brothels. For third world countries child slave labor makes good sense – children are a renewable resource, they don't form unions, they are cheap and trainable. These children enter a lifetime sentence of hard labor and ill health for the "crime" of poverty – their needs lower in Maslow's hierarchy are met but self-actualization is a myth, not an attainable possibility.



Putting it All Together: Different Theories for Different Needs

In this chapter we have given a sample of the many different theories that have been advanced to explain human development. As is abundantly obvious, child development is enormously complex, and we should not expect any theory, however “grand,” to attempt to account for more than one or two selected areas of development. Thus, there are theories that focus specifically on motor, perceptual, cognitive, emotional, social, or personality development.

However, it is important to remember that in the child him/herself, all aspects of development are interrelated. For example, each new motor acquisition in infancy opens up new ways of exploring the world, which in turn affects infants’ awareness of the world and their cognitive and social development. New cognitive achievements affect the child’s social development since they allow the child to interact with others at an increasingly more sophisticated level of understanding. Cognitive and social developments give increased opportunities for children to develop their potentials, and hence allow for the possibility of self-actualization.

The essential point is that theories have to focus on specific areas of development, but development itself is multifaceted and all aspects of change are integrally linked. To illustrate this interrelatedness of different aspects of development, we will focus on one area of development where different theoretical views make their own different contributions, the topic of **gender development**.

GENDER DEVELOPMENT

Gender development concerns the important question of how it is that children grow up knowing that they are either a boy or a girl. Psychologists from several different theoretical traditions have offered accounts of how this happens, and here we give very brief accounts of cognitive, behaviorist/social learning, psychoanalytic, and biological explanations.

A cognitive account

A cognitive view of gender development was offered nearly 40 years ago by the American psychologist Lawrence Kohlberg (1966; see also chapter 14 for his theory of the development of moral reasoning). According to Kohlberg’s account of gender development the child gradually comes to realize that he or she is a boy or a girl and that this is unchangeable – once a girl (or boy) always a girl (or boy), a realization that is known as **gender constancy**. Most children come to this realization some time after 3 years, and almost all know it by age 7 (Wehren & De Lisi, 1983). Kohlberg’s theory suggests that once children understand which gender they are, they will develop appropriate gender-role behaviors. That is, knowing he or she is a girl or a boy helps the child to organize his or her behavior to be gender-appropriate.



A social learning account

Social learning accounts of gender development are based on the work of Albert Bandura, whose views we discussed earlier, and these in turn are developed from behaviorist theories of learning. In this account the child is reinforced for what the parents and others perceive as being gender-appropriate behavior (girls play with dolls, boys don't cry). Additionally, children imitate significant others and learn to observe same-gender models to see how to behave. In this way, through observation, imitation, and reinforcement, children's gender roles are shaped.

A psychoanalytic view

In the Freudian version of psychoanalytic theory a girl's identification with her mother, and a boy's with his father, develop from the resolution of the Electra and Oedipus complexes, as described above. As a result of this identification girls and boys form female and male identities (respectively!) and take on their same-gender parent's views and behavior as their own.

Biological determinants

The accounts described so far all emphasize the role of *nurture* in promoting gender development. But remember that the physical aspects of gender are biologically determined by the type of chromosomes we inherit at conception (see chapter 4). Here we will describe a case history to highlight the role of *nature* (genetic and biological) in gender determination.

This concerns one of a set of normal male twins born in 1966, whom we will call Jim. The twins developed urinary problems and at 8 months Jim (and his twin brother) were taken to a clinic for circumcision. What happened to Jim was that he "had his penis accidentally burned to ablation during phimosis repair by cautery" (Diamond & Sigmundson, 1999, p. 58). What this medical terminology means is that the incompetent physician destroyed Jim's penis.

At the time one of the most influential views on gender development was expressed by the psychologist John Money (e.g., Money & Ehrhardt, 1972) and was that individuals are psychosexually and gender neutral at birth, and that experience (*nurture*) is the sole determinant of their development. A decision was therefore made to carry out gender-reassignment surgery (to create a vagina and female genital appearance), and to rear Jim as Joan. This case is described in earlier textbooks on child development as clear evidence that nurture determined gender roles, and Money's theoretical views achieved widespread acceptance, even to the point that some were arguing that if a genetic male had a small penis (in extreme instances this is referred to as a *micropenis*), then "Often it is wiser to rear a genetic male as a female" (Donahoe & Hendren, 1976, p. 396).

But it all went drastically wrong. Even soon after the operation "Joan" began rejecting girl things, like refusing to wear dresses. Somewhere between the ages of 9 and 11 Joan "figured that I was a guy." At school "she" persisted in standing up to urinate

in the girls' bathroom. She made several suicide attempts and finally, in adolescence, learned the truth. At this time "Joan" refused to carry on as a female and insisted on gender reassignment (which included a mastectomy and phallus reconstruction) to his biologically determined gender. He later married an older woman and adopted her children. A fuller account of this case is given by Diamond and Sigmundson (1999).

Summary

These different accounts of gender development all have their appeal. It is clear that social influences and children's cognitive awareness influence their gender-related behavior. But it is also clear that biological (genetic/hormonal) influences are important. Many, perhaps most, *transsexuals* (those who elect for gender reassignment, often through surgical procedures) will say that they have felt that they were a girl in a boy's body (or vice versa) for as long as they can remember, and even though they have never been reinforced for gender-inappropriate behavior. What is clear is that we have different theoretical views and there are multiple causes of gender development in children. Perhaps biological factors provide the basic differences, and cognitive and social factors add the fine detail to create behavioral differences.

ISSUES IN CHILD DEVELOPMENT

There are many issues, controversies, and debates in the study of child development, and we will see the most important of these in the pages of this book. Many of these topics are specific to a particular area or areas of development, but there are others that affect almost all aspects of growth. Here we briefly describe three of these: the **nature–nurture issue**, **stability versus change**, and **continuity versus discontinuity**.



The Nature–Nurture Issue

We are all of us a product of the *interaction* of the two broad factors of *nature* – inheritance or genetic factors – and *nurture* – environmental influences. For example, it is argued that humans are genetically predisposed to acquire language, but which language we acquire is determined by the language(s) we hear and learn. It is important to note that without both factors no development could occur! Nevertheless, people differ in their abilities, temperaments, personalities, and a host of other characteristics, and psychologists and **behavior geneticists** have attempted to estimate the relative contributions of nature and nurture to these individual variations between people – are certain behavioral characteristics such as gender development (as discussed in the previous section), intelligence, and personality more influenced by heredity or by the environment? A detailed account of these attempts, and of the nature–nurture issue in general, is given in chapter 3.



Stability versus Change

It is often claimed that “the child is father to the man” (or “the child is mother to the woman”), meaning that early experiences influence current and later development. This view suggests that certain aspects of children’s development display stability, in the sense that they are consistent and predictable across time. It turns out that development is characterized by both stability and change – for example, personality characteristics such as shyness and the tendency to be aggressive tend to be stable, while others such as *approach* (the tendency to extreme friendliness and lack of caution with strangers) and *sluggishness* (reacting passively to changing circumstances) are unstable (as discussed in chapter 14).



Continuity versus Discontinuity

In chapter 1 we described two “world views” which are called **organismic** and **mechanistic**. Organismic theories, such as Piaget’s, emphasize that some of the most interesting changes in human development – such as those that accompany major changes in thinking, puberty, and other life transitions such as first going to school, going to college, getting married, etc. – are characterized by discontinuity, by qualitatively different ways of thinking and behaving. Mechanistic theories, as exemplified by behaviorist views, emphasize continuity – that development is reflected by a more continuous growth function, rather than occurring in qualitatively different stages. What complicates things is that, as we have seen, it is often possible to think of the same aspect of development (such as intelligence) as being both continuous and discontinuous. Sternberg and Okagaki (1989, p. 158) state the case as follows:

as it stands, the continuity-discontinuity debate is largely misconceived and . . . we should . . . be thinking in terms of ways in which development is simultaneously continuous and discontinuous with respect to different dimensions of analysis.

SUMMARY AND CONCLUSIONS

Although these three issues will appear regularly in the chapters of this book, it is important to keep in mind that human development requires both nature and nurture, it displays aspects of stability and also change, and it is both continuous and discontinuous.

In the rest of this book you will find many examples of theories and theoretical approaches – mostly the ones that we have described in this chapter, but also a few new ones. Always remember that a theory has specific applications – that is, a limited *range of convenience* – and we should not ask too much of any one. It would be a mistake to criticize Piaget, Freud, and Bowlby for paying too little attention, respectively, to social development, the role of conscious awareness, and cognitive development, since this was not their aim! All of these theoreticians, the others described here, and yet others whose work will appear in later chapters, have helped to mold our understanding of children’s development and make it the exciting, dynamic topic of enquiry that it is today.

DISCUSSION POINTS

- 1 Considering the evidence presented here, list as many aspects of motor development (a) that may not depend on experience, (b) that probably do depend on experience.
- 2 Discuss ways in which Piaget's account of development differs from (a) maturational accounts, and (b) accounts that portray development as molded by the environment.
- 3 Think of differences between Piaget's theory and information-processing theories of development.
- 4 Skinner's theory of learning through reinforcement seems quite plausible in many ways. Think about what makes the account plausible, and also about the aspects of development that it does not explain.
- 5 Taking account of the evidence presented here and adding your own arguments, consider the factors likely to lead to secure attachment.
- 6 Is the psychoanalytic approach to development a theory or just a compelling story?
- 7 How plausible is it that Maslow was able to establish a hierarchy of needs simply from interviews about sexuality?
- 8 The view presented here is that different theoretical approaches to development can exist side by side, complementing each other. Consider whether there are limits to this view. For instance, are there some approaches that are so opposed that they cannot coexist?

SUGGESTIONS FOR FURTHER READING

- Bremner, G., & Slater, A. (2003). *Theories of infant development*. Cambridge, MA, & Oxford: Blackwell.
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