Developmental Psychology 1

Core course of BSc Counselling Psychology

III Semester
(CUCBCSS – 2014 Admission onwards)

UNIVERSITY OF CALICUT

SCHOOL OF DISTANCE EDUCATION

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SCHOOL OF DISTANCE EDUCATION

STUDY MATERIAL

Core course of BSc Counselling Psychology

Developmental Psychology 1

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Module 1

Introduction to Developmental Psychology

Historical Foundation

Developmental psychology is a scientific approach which aims to explain how children and adults change over time. A significant proportion of theories within this discipline focus upon development during childhood, as this period are during when the most change occurs in an individual's lifespan. Developmental psychologists study a wide range of theoretical areas, such as biological, social, emotion, and cognitive processes. Empirical research in this area tends to be dominated by psychologists from western cultures such as North American and Europe. It as a discipline did not exist until after the industrial revolution when the need for an educated workforce led to the social construction of childhood as a distinct stage in a person's life. The notion of childhood originates in the western world and this is why the early research derives from this location. Initially developmental psychologists were interested in studying the mind of the child so that education and learning could be more effective. Developmental changes during adulthood are even more recent area of study. This is mainly due to advances in medical science enabling people to live to an old age.

Charles Darwin is credited with conducting the first systematic study of developmental psychology. In 1877 he published a short paper detailing the development of innate forms of communication based on scientific observations of his infant son, Doddy. However, the emergence of developmental psychology as a specific discipline can be traced back to 1882 when Wilhelm Preyer (a German physiologist) published a book entitled The Mind of the Child. In the book he describes the development of his own daughter from birth to two and a half years. Importantly, he used rigorous scientific procedure throughout studying many abilities of his daughter. In 1888 his publication was translated into English, by this time developmental psychology as a discipline was fully established with a further 47 empirical studies from Europe, North America and Britain also published to facilitate the dissemination of knowledge in the field.

During the 1900s three key figures have dominated the field with their extensive theories of human development, namely Jean Piaget (1896-1980), Lev Vygotsky (1896-1934) and John Bowlby (1907-1990). Indeed much of the current research continues to be influenced by these three theorists.

Different theories of development

Psychodynamic theory

Modern psychodynamic theories of human behaviour and development have their roots in the thinking of Sigmund Freud (1856 - 1939). While there are few psychologists who are strict adherents to Freudian theory, psychodynamic theories continue to influence many theorists.

At their heart, psycho dynamic theories emphasize the belief that forces or dynamics within the individual are responsible for our behaviour. In general, psychodynamic theories
(although Erikson's work is an exception) are more influential in therapeutic contexts than they are in developmental theory. However, as Dixon and Lerner (1999) suggest, psychodynamic theories have exerted an influence on developmental theory, thus it would be unwise to ignore them. In his theory of human personality, Freud stressed the formative nature of early experience and of biologically based drives; his belief was that development is the result of a balance being struck between unconscious drives and a conscious need to adapt one's self to the reality in which we find ourselves. He believed that our personality is made up of three structures: the id, the ego, and the superego. The id is the part of our personality which is made up of instinctual drives. The id operates according to what Freud termed the pleasure principle; that is, the id is directed towards maximizing its pleasure in an immediate fashion. Freud believed that the id dominated an infant's behaviour. As we develop and our instincts come into conflict with reality, the ego emerges. The ego works to satisfy our drives but does so in a socially acceptable manner; it attempts to gratify our needs through constructive and socially appropriate methods. For example, the ego redirects aggressive urges such as a desire to lash out physically at another into more socially acceptable forms such as verbal aggression or vigorous physical play. As the ego operates in this fashion, we begin to internalize the values of our parents and the wider society around us, forming the structure that Freud called the superego. During the preschool years, children accept their parents' values and take these on in the form of their conscience as they apply these standards to their own behaviour. The ego now takes on the role of arbitrating between the id and the superego in an attempt to satisfy both sets of demands. According to Freud, the dynamics of this struggle, occurring during early childhood, sets the stage for our adult personality.

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

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

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

**Psychosocial Theory**

In contrast to Freud's emphasis on sexual and aggressive drives, Erik Erikson (1902-1990) proposed a theory of development which emphasized the role of social and cultural factors in development. In addition, Erikson's theory did not characterize development as ending with adolescence but proposed a true life-span developmental theory which suggests development continues through to old age.

Erikson (1963) believed that human development is best understood as the interaction of three different systems: the somatic system, the ego system, and the societal system. The somatic system is all of those biological processes necessary for the functioning of the individual. The ego system includes those processes central to thinking and reasoning. Finally, the societal system is those processes by which a person becomes integrated into their society. Thus, Erikson's psychosocial approach focuses the study of development on the interaction between changes in these three systems. He took a discontinuous view to development, believing that each of us progresses through eight stages of development. Erikson viewed these stages as occurring in an orderly sequence and he believed that each individual must pass through the stages in this order. At each stage, the individual is confronted with a unique crisis, an age-related task, which must be faced and resolved by the individual. How successfully an individual resolves each crisis determines the nature of further development: successful resolutions lead to healthier developmental outcomes while unsuccessful or incomplete resolutions lead to less optimal outcomes. In addition, at each stage of development, the accomplishments from the previous stage serve as resources to be applied towards mastering the present crisis or challenge. Each stage is unique and leads to the acquisition of new skills and capabilities.

As noted, he proposed eight stages of psychosocial development: (1) basic trust versus mistrust (birth to 1 year); (2) autonomy versus shame and doubt (1 to 3 years); (3) initiative versus guilt (3 to 6 years); (4) industry versus inferiority (6 to 11 years); (5) identity versus
identity diffusion (adolescence); (6) intimacy versus isolation (young adulthood); (7) generativity versus stagnation (middle adulthood); (8) ego integrity versus despair (old age).

During infancy (trust/mistrust), the infant's first task is to develop a sense of trust and a sense of comfort in their caregivers, and eventually, in their environment and in themselves; infants who fail to resolve this crisis in a positive manner may end up mistrusting both themselves and others. During the second stage (autonomy/shame and doubt), the infant develops a sense of their independence and autonomy. However, shame and doubt in one's self may arise if the child is forced into activities which they do not choose. In the third stage (initiative/guilt), the young child develops a sense of initiative, a desire to master their environment. However, guilt can arise if the child shows too much aggression or is irresponsible. During middle childhood (industry/inferiority), children are keen to master intellectual and social challenges but failures may lead to feelings of inferiority and incompetence. During adolescence (identity/identity diffusion), individuals strive to discover who they are, that is, to develop a self-identity. Adolescents who fail to adequately explore alternative pathways for themselves or who allow their identity to be determined by parents and others may experience confusion about who they are. During young adulthood (intimacy/isolation), the task is to achieve a stable and intimate sexual relationship with another person. How well the individual has resolved previous crises (e.g., learning to trust others; making friends and developing social skills) will determine how successful the individual is in achieving intimacy with others; individuals who cannot achieve intimacy are vulnerable to isolation. In middle adulthood (generativity/stagnation), the creation of something, whether it is children or something more abstract like ideas or art becomes the central task. The failure to express one's self in this way can lead to feelings of stagnation and the feeling that one has no meaningful accomplishments. Finally, in old age (ego integrity/despair) we look back and assess our lives. The individual who has resolved previous stages in a negative fashion will tend to look back on their lives with a feeling of despair and gloom while the individual who has been successful will look back on a life well spent and can derive a sense of integrity.

Table 1.1 Erikson’s 8th Stage of Development

<table>
<thead>
<tr>
<th>Stage of Development</th>
<th>Age</th>
<th>Crisis</th>
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<tbody>
<tr>
<td>Trust vs. mistrust</td>
<td>Birth to 1 year</td>
<td>Developing a sense of trust in caregivers, the environment, and one's</td>
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<tr>
<td>Autonomy vs. shame</td>
<td>1 to 3 years doubt</td>
<td>Developing a sense of one's autonomy and independence from the caregiver.</td>
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<tr>
<td>Initiative vs. guilt</td>
<td>3 to 6 years</td>
<td>Developing a sense of mastery over aspects of one's environment, coping</td>
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<tr>
<td></td>
<td></td>
<td>with challenges and assumption of increasing responsibility.</td>
</tr>
<tr>
<td>Industry vs. inferiority</td>
<td>6 years to adolescence</td>
<td>Mastering intellectual and social challenges.</td>
</tr>
<tr>
<td>Identity vs. identity diffusion</td>
<td>Adolescence (12 to 20 years)</td>
<td>Developing a self-identity, that is, a knowledge of what kind of a person</td>
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### 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.

### Behaviourism and Social Learning Theory

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

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

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

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

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: the variables of interest are clearly defined and its hypotheses are stated in a precise fashion. The resultant testing of the theory has led to substantial revisions such as its increased emphasis on cognitive factors. At the same time, the cognitive model which underlies the theory has been criticized for being poorly worked out in comparison to information processing theories which present detailed models of cognitive processes. Finally, social learning theory has been criticized for not paying enough attention to a wide range of contextual variables which may impact on children's observational learning. While the theory has addressed some contextual variables like the characteristics of models which effect development, other context effects such as socioeconomic factors, race, sex and education remain relatively unexplored.

The Bio ecological Model of Development

A view which has received an increasing amount of attention from developmental psychologists is Urie Bronfenbrenner's bioecological model of human development. Bronfenbrenner (1974) is famous for his suggestion that an overemphasis on lab research had caused developmental psychology to become 'the study of the strange behaviour of children in strange situations for the briefest possible period of time'. In contrast to the bulk of developmental research which is conducted in laboratory settings, he argued that the proper study of development required one to observe children and adults in their actual environment; most laboratory research misses out on critical information which can only be gained by studying children in natural contexts. In addition, a great deal of laboratory-based research is not generalizable to the everyday contexts in which humans live and grow.
When psychologists examine the effects of the environment on children, the environment is typically construed in a very static and narrow fashion - often as the child's immediate surroundings. In contrast, Bronfenbrenner (1989) views the environment as a dynamic entity which is constantly changing. In addition, in Bronfenbrenner's (1979) bioecological model of human development, the environment is conceived of in a very wide sense, as a series of nested structures that extends beyond the child's immediate environment (e.g., their home or neighbourhood) to include their school, community, and the social and cultural institutions that impact on their lives. In his model, the individual is the centre of a system which includes four layers, each representing different aspects of the environment. Each of the four layers is regarded as having a powerful impact on the child's development.

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

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

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

At the outermost level of Bronfenbrenner's model is the macrosystem. The macrosystem is not a specific environmental context but, rather, the overarching ideology, values, laws, regulations, and customs of a given culture. Cultural influences can have a powerful effect on children's development. Comparisons made across cultures have the potential to provide very important information about the effects of culture on development. Bronfenbrenner also included
in his model the notion that development occurs in historical time within his model. He called this temporal aspect the chronosystem. The chronosystem involves all aspects of time, and how they impact on development. For example, research on the timing of puberty has shown that the age at which puberty begins can have a profound impact on later development (Jones & Bayley, 1950). Historical events which occur in time also have important effects on development. For example, the work of Elder (1974) showed that the economic depression of the 1930s had significant impact on the lives of children growing up during that period. In these ways and many others, the chronosystem has a powerful influence on development.

Cognitive Developmental Theories

In regard to the study of cognitive development, there are three theories which have had a dramatic impact on the field. These are Piaget's cognitive - developmental theory (e.g., Piaget, 1983), Vygotsky's sociocultural theory development (Vygotsky, 1978, 1986), and the information processing approach to cognitive development.

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. Piaget began working in developmental psychology in the 1920s but it was not until the 1960s that his work garnered much attention as it became increasingly available. Piaget's work was largely at odds with the behaviourist tradition which was dominant in North America until the 1960s. Unlike the behaviourists of the day, Piaget did not view the child as a passive recipient of knowledge whose development is the product of reinforcement or punishment, but, rather, as an active participant in the creation of their own understanding.

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

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

Finally, at the formal operational stage, the adolescent gains the ability to think abstractly. Unlike the concrete operational child, the adolescent's thinking is no longer tied to concrete reality but can move into the possible or hypothetical.

As mentioned earlier, Piaget's theory has proven extremely influential to the study of children's cognitive development; however, in recent years, the theory has come under an increasing level of criticism. For example, many developmental psychologists are dissatisfied with Piaget's portrayal of the child as a solitary learner and feel that he did not give enough attention to the role of social and cultural factors in children's cognitive development.

**Vygotsky's sociocultural theory of development**

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

Vygotsky also believed that children's development follows a particular pattern. Any development occurs at two different levels: children first evidence development in interpersonal interactions which occur between themselves and other people. Only later do children show evidence of development on an individual or intrapersonal level. He labeled this shift from development being evidenced on the interpersonal to an intrapersonal level as internalization. An example of internalization can be seen in children's self-talk while problem solving. Children take the kinds of dialogues they engage in with parents or teachers (e.g., 'Hake your time' or 'be careful') while solving problems and talk to themselves while working on problems alone. Eventually, this self-talk is internalized and the child no longer needs to talk out loud.

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

**Bibliography**


Module 2

Motor and Cognitive Development from Infancy to Adolescence

New born reflexes, Gross and fine motor skills

Motor skills are actions that involve the movement of muscles in the body. They are divided into two groups: gross motor skills, which include the larger movements of arms, legs, feet, or the entire body (crawling, running, and jumping); and fine motor skills, which are smaller actions, such as grasping an object between the thumb and a finger or using the lips and tongue to taste objects. Both types of motor skills usually develop together, because many activities depend on the coordination of gross and fine motor skills.

Gross Motor Development

Gross motor development includes the attainment of skills such as rolling over, sitting up, crawling, walking, and running. Gross motor behavior enables infants to move and thereby attain different and varied perspectives on the environment. Behaviors such as pulling to stand and climbing present children with new learning opportunities. When infants push a toy stroller or shopping cart, they are also engaging in processes related to cognitive development, such as imitation. The gross motor behaviors involved in active outdoor play with other children are related to children’s development of social skills and an understanding of social rules.

Fine Motor Development

Through touching, grasping, and manual manipulation, infants experience a sense of agency and learn about the features of people, objects, and the environment. Fine motor development is related to the ability to draw, write, and participate in routines such as eating and dressing. Common early childhood learning materials, such as pegboards, stacking rings, stringing beads, puzzles etc. offer opportunities for infants to practice their fine motor skills. Fine motor movements of the hands are coordinated with perceptual information provided through movements of the eyes, as when seven- to nine-month-old infants use visual information to orient their hands as they reach for an object.

Infancy

The hands of newborn infants are closed most of the time and, like the rest of their bodies, they have little control over them. If their palms are touched, they will make a very tight fist, but this is an unconscious reflex action called the Darwinian reflex, and it disappears within two to three months. Similarly, infants will grasp at an object placed in their hands, but without any awareness that they are doing so. At some point their hand muscles relax, and they drop the object, equally unaware that they have let it fall. Babies may begin flailing at objects that interest them by two weeks of age but cannot grasp them. By eight weeks, they begin to
discover and play with their hands, at first solely by touch, and then, at about three months, by sight as well. At this age, however, the deliberate grasp remains largely undeveloped.

Hand-eye coordination begins to develop between the ages of two and four months, inaugurating a period of trial-and-error practice at sighting objects and grabbing at them. At four or five months, most infants can grasp an object that is within reach, looking only at the object and not at their hands. Referred to as "top-level reaching," this achievement is considered an important milestone in fine motor development. At the age of six months, infants can typically hold on to a small block briefly, and many have started banging objects. Although their grasp is still clumsy, they have acquired a fascination with grabbing small objects and trying to put them in their mouths. At first, babies will indiscriminately try to grasp things that cannot be grasped, such as pictures in a book, as well as those that can, such as a rattle or ball. During the latter half of the first year, they begin exploring and testing objects before grabbing, touching them with an entire hand and, eventually, poking them with an index finger.

One of the most significant fine motor accomplishments is the pincer grip, which typically appears at about 12 months. Initially, infants can only hold an object, such as a rattle, in their palm, wrapping their fingers (including the thumb) around it from one side. This awkward position is called the palmar grasp, which makes it difficult to hold on to and manipulate the object. By the age of eight to 10 months, a finger grasp begins, but objects can only be gripped with all four fingers pushing against the thumb, which still makes it awkward to grab small objects. The development of the pincer grip—the ability to hold objects between the thumb and index finger—gives the infant a more sophisticated ability to grasp and manipulate objects and also to deliberately drop them. By about the age of one, an infant can drop an object into a receptacle, compare objects held in both hands, stack objects, and nest them within each other.

**Fine motor skills development tests**

The Lincoln-Oseretsky Motor Development Scale is an individually administered test that assesses the development of motor skills in children and adults. Areas covered include fine and gross motor skills, finger dexterity and speed, and hand-eye coordination. The test consists of 36 tasks arranged in order of increasing difficulty. These include walking backwards, standing on one foot, touching one's nose, jumping over a rope, throwing and catching a ball, putting coins in a box, jumping and clapping, balancing on tiptoe while opening and closing one's hands, and balancing a rod vertically. Norms have been established for each part of the test for children aged six to 14.

The Beery-Buktenica Test, also known as VMI or Developmental Test of Visual-Motor Integration, is designed for individuals two years of age through adult. The text identifies problems with visual perception, fine motor skills (especially hand control), and hand-eye coordination. It is usually administered individually but can also be given in groups. The child is given a booklet containing increasingly complex geometric figures and asked to copy them without any erasures and without rotating the booklet in any direction. The test is given in two versions: the Short Test Form, containing 15 figures, is used for ages three through eight; the
Long Test Form, with 24 figures, is used for older children, adolescents, and adults with developmental delay. A raw score based on the number of correct copies is converted based on norms for each age group, and results are reported as converted scores and percentiles. The test is not timed but usually takes 10 to 15 minutes to administer.

**Perceptual Development in infancy**

A newborn enters the world. He quickly recognizes his mother's soothing voice, but sounds he does not recognize in the environment grasp his attention quickly and often startle him. A three month old has a favorite stuffed animal that she holds frequently. Other than wanting it near, she seems to pay little attention to it. When she is given a new stuffed animal of another color, she examines the toy closely. A four month old will happily eat his banana baby food but puts up a fight about eating new foods that are introduced as his mother tries to feed him. These are all examples of habituation. Habituation is a decrease in response to a stimulus after repeated exposure to the same stimulus. In other words, repeated stimuli receive progressively less processing from the brain. Because of this, novel information and repeated information are treated differently by the brain. It's been shown that infants habituate to different stimuli, and they use this habituation to draw conclusions and learn about their environment. Habituation can affect this learning process in different ways. Many important studies of infant perceptual development have relied on the concept of habituation. Perceptual development refers to the development of the five senses: sight, sound, taste, touch, and smell.

**Sensory Development**

Let's look at this perceptual development in an infant, development of the five senses at this stage? We used to believe that newborn babies were extremely limited in their perceptions of the world around them. A couple of old myths that illustrate this are that babies cannot see at birth or are colorblind, and that babies cannot hear at birth because their ears are filled with mucus and fluid. We now know that notions like this are false, and that newborns have some amazing capabilities.

**Hearing**

An infant can hear and react to sound, even before he is born! In the uterus, an unborn child hears familiar voices, its mother's heartbeat, and other internal sounds. These familiar sounds often comfort them once they are born. The baby become calm at the sound of its mother's voice or ocean sounds this may be because these sounds are already familiar to them. The child may startle at sudden, loud noises as well. Sounds like this are less familiar to the infant. Differentiation between unfamiliar and familiar sounds will eventually assist with the process of learning verbal language.

**Sight**
A newborn's vision at birth is about 20/200. He can clearly focus on objects about 7-18 inches away, and his favorite thing to look at is the human face. This is convenient since 7-18 inches is also about the same distance as a mother's face while the child is being held or fed.

A newborn prefers contrasting dark and light color patterns or shiny, slow-moving objects. If an object catches the newborn's attention, he can track its movement in an arc above his head. This is a far cry from the myth that babies cannot see at birth.

**Smell**

From the time of birth, an infant can distinguish his mother's scent. He can even tell the difference between his mother's breast milk and formula or another mother's breast milk. In the first week of life, he will learn the differences in smells and start to prefer pleasant scents to unpleasant ones.

**Taste**

Unsurprisingly, an infant will prefer sweet-tasting substances. This makes sense since breast milk is a sweet-tasting substance. He will distinguish and react differently to salty, bitter, or sour substances as well. Since an infant is only fed breast milk or formula in the first few months of life, the introduction of new tastes requires some adjustment. It may take a few attempts, but over time, he will learn to tolerate and even like new tastes.

Perception develops through information that is gathered from the senses, which allows children to make sense of their environment. As they grow, babies and young children learn to discern information from the environment that is significant to them. This ability to filter information helps children interpret and attach meaning to objects and events. Piaget’s stages of cognitive development describe the development of perception.

**Sensorimotor Stage: Simple Reflexes**

The simple reflexes substage is from birth to one month of age. At this age, infants begin to coordinate their inborn reflexes through sensation and action. They are born with reflexes that allow them to suck and grasp and they begin to follow objects with their eyes.

**Sensorimotor Stage: Primary Circular Reactions**

From one to four months of age, infants begin to coordinate information from their senses. Infants intentionally repeat actions that occur automatically as reflexes. In this way, infants repeat behaviors they perceive as pleasurable, such as thumb sucking. Babies this age can also coordinate auditory and visual sensations by turning toward sounds.

**Sensorimotor Stage: Secondary Circular Reactions**

This substage is from four to eight months of age. At this age, infants develop more coordination between vision and movement. Infants repeat actions that bring about interesting results, such as dropping a cup on the floor to see mom pick it up. Infants this age intentionally grasp objects. As they become mobile, their perception develops, and they gain spatial knowledge.
Sensorimotor Stage: Coordination of Secondary Circular Reactions

At eight to twelve months of age, babies develop object permanence, meaning that they understand that objects still exist when they are out of sight. Their spatial perception develops, so they are able to crawl or walk toward interesting objects. Their coordination between vision and movement allows them to perceive behaviors as means to an end. In this way, their actions become goal oriented, and they may push a button on a toy to hear the sound it makes.

Sensorimotor Stage: Tertiary Circular Reactions

At 12 to 18 months of age, toddlers begin to experiment with new behaviors. They intentionally vary their actions to get interesting results. For example, a child this age may shake different rattles to hear the variations in sound from each one. They also perceive the different properties of objects and are curious about them.

Sensorimotor Stage: Mental Combinations

From 18 to 24 months of age, children develop symbolic thought. They can mentally represent events in their minds, allowing them to anticipate and perceive the consequences of certain actions. They are not confined to trial-and-error methods to obtain desired results because their perceptions of objects and events are stored in their memories.

Preoperational Stage

Between two and seven years of age, mental representations improve and objects do not have to be present for children to think about them. Younger children do not understand that others may perceive objects differently than they do. Older children are limited by centration. In Piaget’s beaker experiment, children did not recognize that the amount of water remained the same when it was poured into another beaker.

Piaget Theory of Cognitive Development: Process of Development

Jean Piaget, a Swiss biologist, had profound interest in epistemology, a branch of philosophy concerned with the nature of knowledge. But afterwards he developed a keen interest in child and cognitive psychology. Piaget proves a larger context in which he views the acquisition of knowledge and competence as consequence of growth and interaction with the physical and social environment. Piaget’s had a background in Biology. He called his theoretical framework genetic epistemology because he was primarily interested in how knowledge developed in human organisms.

Piaget too was an ardent spokesman of cognitive development approach to learning. He explained how out of the natural tendency to develop intellectually or cognitive, human organisms interact with the environmental stimuli, process the various items of information that draw their attention, internalize these, integrates the related ones and thus build up a cognitive structure. By cognitive structure he meant a totality of integrated whole containing all items of knowledge internalized built into a structure. The learning theory of Piaget explains how cognitive development happens in this manner.
To explain this developmental process Piaget uses the term schema which he considers as the basic unit with which the cognitive structure is built up. It may be conceived as the mental image of an experience that has been received by an organism. It may be as simple as a physical schema like shutting the eyes to a complex schema like writing. It may be physical as the one cited above, social as smiling or saying tata to a guest, conceptual like trapezium, etc. As the individual draws more and more experiences, the number and complexity of the schemas also increase. When a chain of schemas are involved in a particular task it may be aid to be a scheme. For example setting the apparatus and conducting an experiment. Thus schemas (schemata) and clusters of schemas resulting in schemes give shape to the cognitive structure. It is evident therefore that efficiency of the cognitive development of an individual is determined by the number; variety and quality of the schemas, and also the way in which these are systematically form a structure. Piaget examines how this could be efficiently made possible through the process of instruction.

To explain how cognitive development occurs, Piaget uses the analogy of biological adaptation. According to him biologically every living organism would like to remain in the existing state of equilibrium without being disturbed. This is because loss of equilibrium brings out changes in the energy level which in turn creates anxiety and threatens its safety. But at the same time the organism cannot remain static because it has to face constantly internal and external stimuli impinging on it. The disequilibrium thus experienced is so distressing that the organism is motivated to take steps to bring back the disturbed energy level to a state of equilibrium or to equilibrate. When equilibration is made possible the organism gets relieved because it has adapted with the situation biologically.

Assimilation has been conceived by Piaget as the process by which an unfamiliar schema is made familiar by linking it with familiar schemas already existing in the cognitive structure. It is for this purpose schemas are to be shuttled forward and backward using the ability for reversibility. When once assimilation takes place the unfamiliar schemas become ready to enter the cognitive structure. Then comes the need for proper integration, registration, and structuring. For this the assimilated schemas are to be given a most suitable place in the cognitive structure so that it becomes a part of that entity. This process is known as accommodation. When the new schemas involved in the problematic situation are then assimilated and accommodated the disequilibrium disappears and equilibrium regained. This process is equilibration. By equilibration the individual adapts with the new problematic situation and thus get developed cognitively.

Piaget, on account of his biological background, traced the initiation of human cognitive development in terms of biologically inherited ways of interacting with the environment. He further postulated that the changes and developments in one’s cognitive structure are brought about by interaction with one’s physical and social environment. This task is carried out through the mechanism of equilibration, resulting in constant organisation of one’s cognitive structure by the interplay of accommodation and assimilation. This task of constant organisation of the mental structure is an individual phenomenon; we may, therefore find
wide differences between children in terms of possession of cognitive abilities. However, as Piaget concluded, this organisation of the mental structure in all children always takes place in a particular order involving definite stages of intellectual development. Thus, although children of the same age may differ in terms of possession of mental abilities, the order, in which the abilities evolve, and the pattern of development are quite constant and universal. Let us discuss this pattern of intellectual development in terms of the four developmental stages suggested by Piaget.

**Four Stages of Development**

1. **Sensory-motor Stage** (From birth to about 2 years)

   Piaget called the first stage of intellectual development the sensory-motor stage because it is characterized by the absence of language, and it is limited to direct sensory and motor interactions with the environment. The cognitive development occurs along the following pattern:
   
   1. At birth the infant exhibits a limited number of uncoordinated reflexes such as sucking, looking, reaching and grasping.
   2. During the next four months the uncoordinated reflexes are coordinated into simple schemas providing the child with a general potential to perform certain classes of behaviour. For example, the infant now tries to suck anything which is put into his mouth, stares at whatever he sees, reaches for everything and grasps all that is put into his hands.
   3. By the age of 8 months the infant is able to react to objects outside himself. He begins to realize that the objects around him are separate from himself and they have their independent and permanent existence. Prior to such development his view of the environmental objects is quite object permanence transitory, i.e. what is out of sight is purely out of mind.

2. **Pre-operational Stage** (about 2 to 7 years)

   While stepping into this stage, the child begins to replace direct action in the form of sensory or motor exploration with symbols. The learning of the language provides him with a good tool for thinking. He begins to utter words to ask for something rather than just reaching out to get it. In addition to words, his thinking is also characterized by other symbolic representations or images of the things in the environment. This stage can be further subdivided into (1) the pre-conceptual phase (approximately two to four years) and (2) the intuitive phase (approximately four to seven years).

   1. **Pre-conceptual phase**

      This is the period of the rudimentary concept formation and is characterized by the following features:
a) In the early part of this stage, the children seem to identify objects by their names and put them into certain classes. However, they usually make mistakes in this process of identification and concept formation. For example, they think all men are ‘daddy’, all women are ‘mummy’ and all dogs are ‘montu’.

b) Their mode of thinking and reasoning is quite illogical at this stage. It is neither inductive nor deductive but rather transductive in nature. For example, the child at this stage would reason like: as “cows are big animals with four legs and a long tail. This animal is also big and has four legs and a long tail, therefore it is a cow”.

c) Their thinking is sometimes too imaginative and far removed from reality. It may be seen in their play activities when a block of wood is turned into a riding horse or motor cycle and a doll into a baby. Moreover, at this stage they are unable to distinguish between living and non-living objects. For them the doll in their hands is a live baby who can cry, smile and sleep.

d) The other major characteristic of the intellectual structure of the child at this stage is concerned with his egocentric nature. By egocentric Piaget means that the child can see the world only from his own standpoint. He cannot think that people may have different opinions and differ in their modes of thinking and conclusions.

II Intuitive phase (approximately four to seven years)

At this stage the child progresses towards the formation of various concepts at a more advanced level. For example, now he will agree that apples, oranges and bananas are all fruits despite the difference in their shape, colour or taste. But what he thinks or solves at this stage is carried out intuitively, rather than in accordance with any logical rule. It is clearly reflected in the absence in him of the two main cognitive characteristics namely, reversibility (ability to reverse) and conservation (ability to see an object as permanent even though its length, width or shape changes).

3. Concrete Operational Stage (about 7 to 11 years)

This stage shows marked developments in the cognitive functioning of the child.

- The child now learns to deal with concepts and ideas that exist only in mental terms.
- He begins to think in terms of a set of interrelated principles than single bits of knowledge.
- His thinking becomes more logical and systematic. He can now make use of inductive and deductive approaches in terms of reasoning and arriving at conclusion.
- The child now develops the ability to conserve both in terms of quantity and number of objects.
- The thinking of the child is no longer ‘rigid’ and ‘irreversible’. A female child who has a sister now clearly realizes that her sister also has a sister.
• The child now is no longer ego-centric in his thinking. He does not think of himself as the centre of the external world and does not perceive the world only from his own standpoint.

• The child now develops the abilities to deal adequately with classes. He can classify objects.

• The child now learns to carry out rather complex operations or tackle problems as long as they are concrete and not abstract

In this way, the child reaches a satisfactory level in terms of intellectual development by his thinking becoming quite systematic and logical. However, what is done or thought by him at this stage is done purely on a concrete level. His thought processes are limited to real events observed or the actual objects operated by him. He is unable to think in abstract terms.

4. Formal Operation Stage (about 12 to 15 years)

The intellectual development and functioning takes a very sophisticated shape at this stage as the child learns to deal with abstraction by logical thinking. Actually he learns to utilize the tool of symbolism as effectively as possible in the process of thought and problem solving. The child now gets interested in forms. He begins to construct relationships between concrete operations and between symbols. Generalizations and framing of rules by operating in abstract terms become quite possible at this stage. The child now begins to appreciate that some hypothetical problems can be solved mentally by applying the same rules as would be applied to concrete problems. He begins to look at problems in many ways and explore various solutions but in a very systematic and logical way. For example, if a child of this stage is shown five colorless, odorless liquids in test tubes and is asked to find out what combination of the five will produce a brown liquid, he is likely to discover the possible combination by adopting a systematic approach. Thus it is quite distinctive in comparison to the children belonging to earlier stages of cognitive development who will simply resort to trial and error for finding the solution.

Moreover, the child’s thinking at this stage does not remain only concrete but becomes hypothetical, with considerations given to the most unusual ideas. Hence the creative aspects in the child are very much visible during this age not only in terms of concrete operations but also in terms of abstraction and pure imagination.

The other noticeable characteristic of this stage, as Piaget found, was the child’s interest in dealing with things that do not exist in reality instead of the things concerning the present which are actually perceived by him.

In fact, Piaget was of the opinion that the thought process and the intellectual functioning of a child at the formal operational period reflect the beginning of the most advanced stage in the functioning of his cognitive system. It provides a ladder to reach the limits of a person’s intellectual development and actualize his potentiality to the maximum in
the available circumstances. The high order of intellectual functioning developed through this stage, according to Piaget, is usually characterized by the presence of the most sophisticated cognitive abilities like the ability to (a) build up multiple hypotheses and a number of alternate solutions; (b) verify all possible solutions in a systematic and logical way; (c) generalize and arrive at abstract rules that cover many specific situations.

In this way, according to Piaget, after the expiry of the formal operation stage the child may reach full intellectual potential. He may discover the solutions of problems through mental manipulation of symbols by adopting a logical and systematic procedure known as scientific thinking and problem solving rather than a reflexive, motor or sensory manipulation as is done at the sensory motor stage; or by exposing his thinking operationally in more concrete terms as done at the concrete operation stage. It thus represents a stage which helps the child to attain mental maturity with respect to the development of his cognitive abilities.

Language Development

A language consists of symbols that convey meaning, plus rules for combining those symbols, that can be used to generate an infinite variety of messages. Language systems include a number of critical properties. First, language is symbolic. People use spoken sounds and written words to represent objects, actions, events, and ideas. The word lamp, for instance, refers to a class of objects that have certain properties. The symbolic nature of language greatly expands what people can communicate about. Symbols allow one to refer to objects that may be in another place and to events that happened at another time (for example, a lamp broken at work yesterday). The symbols used in a language are arbitrary in that no built-in relationship exists between the look or sound of words and the objects they stand for. Lamps could have been called books, for instance, and vice versa.

Second, language is generative. A limited number of symbols can be combined in an infinite variety of ways to generate an endless array of novel messages. Everyone has some “stock sayings,” but every day you create sentences that you have never spoken before. You also comprehend many sentences that you have never encountered before (like this one).

Third, language is structured. Although people can generate an infinite variety of sentences, these sentences must be structured in a limited number of ways. Rules govern the arrangement of words into phrases and sentences; some arrangements are acceptable and some are not. For example, you might say, “The swimmer jumped into the pool,” but you would never recombine the same words to say, “Pool the into the jumped swimmer.” The structure of language allows people to be inventive with words and still understand each other. Let’s take a closer look at the structural properties of language.

The Structure of Language

Human languages have a hierarchical structure. Basic sounds are combined into units with meaning, which are combined into words. Words are combined into phrases, which are combined into sentences.

Phonemes
At the base of the language hierarchy are phonemes, the smallest speech units in a language that can be distinguished perceptually. Considering that an unabridged English dictionary contains more than 450,000 words, you might imagine that there must be a huge number of phonemes. In fact, linguists estimate that humans are capable of recognizing only about 100 such basic sounds. Moreover, no one language uses all of these phonemes. Different languages use different groups of about 20 to 80 phonemes. For all its rich vocabulary, the English language is composed of about 40 phonemes, corresponding roughly to the 26 letters of the alphabet plus several variations. A letter in the alphabet can represent more than one phoneme if it has more than one pronunciation. For example, the letter a is pronounced differently in the words father, had, call, and take. Each of these pronunciations corresponds to a different phoneme. In addition, some phonemes are represented by combinations of letters, such as ch and th. Working with this handful of basic sounds, people can understand and generate all the words in the English language - and invent new ones besides.

**Morphemes and Semantics**

Morphemes are the smallest units of meaning in a language. There are approximately 50,000 English morphemes, which include root words as well as prefixes and suffixes. Many words, such as fire, guard, and friend, consist of a single morpheme. Many others represent combinations of morphemes. For example, the word unfriendly consists of three morphemes: the root word friend, the prefix un, and the suffix ly. Each of the morphemes contributes to the meaning of the entire word. Semantics is the area of language concerned with understanding the meaning of words and word combinations. Learning about semantics entails learning about the infinite variety of objects and actions that words refer to. A word’s meaning may consist of both its denotation, which is its dictionary definition, and its connotation, which includes its emotional overtones and secondary implications.

**Syntax**

Of course, most utterances consist of more than a single word. As we’ve already noted, people don’t combine words randomly. Syntax is a system of rules that specify how words can be arranged into sentences. A simple rule of syntax is that a sentence must have both a noun phrase and a verb phrase. Thus, “The sound of cars is annoying” is a sentence. However, “The sound of cars” is not a sentence, because it lacks a verb phrase. Rules of syntax underlie all language use, even though you may not be aware of them. Thus, although they may not be able to verbalize the rule, virtually all English speakers know that an article (such as the) comes before the word it modifies. For example, you would never say swimmer the instead of the swimmer. How children learn the complicated rules of syntax is one of the major puzzles investigated by psychologists interested in language. Like other aspects of language development, children’s acquisition of syntax seems to progress at an amazingly rapid pace. Let’s look at how this remarkable development unfolds.

**Milestones in Language Development**
Learning to use language requires learning a number of skills that become important at various points in a child’s development. We’ll examine this developmental sequence by looking first at how children learn to pronounce words, then at their use of single words, and finally at their ability to combine words to form sentences.

Moving Toward Producing Words

Three-month-old infants display a surprising language-related talent: They can distinguish phonemes from all the world’s languages, including phonemes that they do not hear in their environment. In contrast, adults cannot readily discriminate phonemes that are not used in their native language. Actually, neither can 1-year-old children, as this curious ability disappears by the time children reach 12 months of age. The exact mechanisms responsible for this transition are not understood, but it is clear that long before infants utter their first words, they are making remarkable progress in learning the sound structure of their native language. Progress toward understanding words also occurs during the first year. By 7.5 months, infants begin to recognize common word forms and by 8 months many show the primitive first signs of understanding the meanings of familiar words. During the first six months of life, a baby's vocalizations are dominated by crying, cooing, and laughter, which have limited value as a means of communication. Soon, infants are babbling, producing a wide variety of sounds that correspond to phonemes and, eventually, many repetitive consonant vowel combinations, such as “lalalalalala.” Babbling gradually becomes more complex and increasingly resembles the language spoken by parents and others in the child’s environment (Hoff, 2005). Babbling lasts until around 18 months, continuing even after children utter their first words. At around 10 to 13 months of age, most children begin to utter sounds that correspond to words. Most infants’ first words are similar in phonetic form and meaning—even in different languages. The initial words resemble the syllables that infants most often babble spontaneously. For example, words such as dada, mama, and papa are names for parents in many languages because they consist of sounds that are easy to produce.

Refining Language Skills

Youngsters make their largest strides in language development in their first 4 to 5 years. However, they continue to refine their language skills during their school-age years. They generate longer and more complicated sentences as they receive formal training in written language. As their language skills develop, school-age children begin to appreciate ambiguities in language. They can, for instance, recognize two possible meanings in sentences such as “Visiting relatives can be bothersome.” This interest in ambiguities indicates that they’re developing metalinguistic awareness— the ability to reflect on the use of language. As metalinguistic awareness grows, children begin to recognize that statements may have a literal meaning and an implied meaning. They begin to make more frequent and sophisticated use of metaphors, such as “We were packed in the room like sardines” (Gentner, 1988). Between the ages of 6 and 8 most children begin to appreciate irony and sarcasm. Irony involves conveying an implied meaning that is the opposite of a statement’s literal meaning (on learning that he
got a D on an exam, a student says, “Oh, that’s just great”). Sarcasm is a variation on irony in which there is a caustic element directed at a particular person (commenting on a blunder by her husband a woman says, “My husband, the genius”). Understanding sarcasm requires appreciating the subtleties of an utterance’s social and cultural context. Interestingly, although language processing is generally handled by the left hemisphere of the brain, the right hemisphere appears to play a key role in the understanding of sarcasm.

Language Development : Prelinguistic, Phonological, Semantics Grammatical and Pragmatic Development

1. The Prelinguistic

When spoken to, neonates will often open their eyes and gaze at the speaker, and after 3 days they are able to recognize their mother’s voice. They then prefer the sound of their mother to that of a female stranger. In the first few days of life, speech already elicits more activity in the left hemisphere than in the right. With music the reverse is true. This pattern persists into adulthood, and suggests that hemispheric specialization for processing different types of acoustical stimuli occurs before birth and may be innate (although left handers are less hemispherically dominant than right handers.) Young infants will suck faster in order to be able to hear sounds of recorded speech, in preference to instrumental or rhythmical sounds. In short, babies are able to discriminate speech from other sounds from the moment of birth. They pay close attention to speech and will listen to speech in preference to other kinds of auditory stimulation. By 2 days of age babies are able to discriminate between the vowel sounds of /a/ and /i/. It is unlikely that different samples of speech seem all alike to a newborn. By 0;1 infants are as able as adults in distinguishing between the consonant sounds /ba/ and /pa/ and /da/ and /ta/, even though the children have never been able to produce the sounds. The ability to discriminate speech and non-speech sounds is probably innate, or learned in the first few days of life. From birth to about 1 month the child produces sounds which are stimulated by their physical state. They are still able to convey several different kinds of information. It would seem that temporal characteristics of crying patterns are able to convey info that enables babies to make their needs known. Psychologists have managed to distinguish 3 different types of crying: Hunger cries The cry starts as a quiet and intermittent cry which gradually becomes louder and more rhythmical. Angry cry The cry of pain is sudden and loud from the start and consists of a long cry followed by a long silence, then a series of short gasping sounds. From 0;1 onwards babies are able to make a cooing sound that seems to be produced in response to pleasurable sociable interactions. They occur particularly in dialogues - arising between mother and child, such as in nappy changing or bathing. Although many conversations between mother and child appear to be completely one sided, video recordings show that the baby will stare fixedly at the face of the adult and display signs
of enjoyment. It has been argued that early interactions between mother and child of this sort form the basis for language learning at a later period. From 0; 6 to 0; 9 the baby enters the babbling or echolalia stage, in which the baby reproduces vowels and some consonants. The baby is therefore no longer confined to the simple vocal patterns of the first few months. Echolalia is the frequent repetition of syllabic sounds such as /adadadada/ or /mamamamama/ in which the baby engages. During this period the baby spends a lot of the time making noises while alone. Perhaps this is a stage in which the child is rehearsing its linguistic skills. The child is also at this time learning other types of behavior which they use only with familiar people. Initially during this period the parent expends a lot of effort in interpreting the baby.

2. Phonology refers to the set of basic units of speech: phonemes. They have no meaning on their own, but they can be chained together to form words, that do. English has around 45 phonemes, other languages have up to 60 (but no more).

3. Semantics is the stage at which the individually meaningless phonemes are assembled to produce meaningful portions of language, called morphemes. Morphemes are either words or grammatical markers such as prefixes or suffixes to indicate for instance tense or plurality. The meanings are arbitrarily assigned and bear no inherent relationship to the sound which they are denoted by. Children go through a stage when they recognize that words are used to convey meaning. This is no mean task when considered in detail. One of the primary problems of semantics is knowing exactly how children go about deducing the meaning of words, and how they generalize or specialize concepts. (How can you know what a child means by a word, if what they mean is different from what you mean?)

4. Syntax refers to the form or structure of the language, and deals with the rules that specify how words are combined in order to express meanings. It deals with how to interpret the meaning of a sentence depending upon the word order. For example, consider the following two sentences: John hit Jim Jim hit John. In English in an active sentence the noun which precedes the verb names the doer of the action. The noun which follows it names the object of that action. The sentence: Jim John hit violates the rules of word ordering for English and consequently is deemed ungrammatical, although it would not be so in France. The interactions between the rules of syntax for a language and the meanings of the morphemes of the language that are in the sentence help the language user to deduce the combined meaning of the sentence.

5. Pragmatics is the knowledge, independent of semantics and syntax etc, of what kind of response would be appropriate in a given social situation. For example one would not communicate very well if one covered ones mouth with ones hand. Similarly if one preceded a sentence with “now listens here my man.” One would have the same effect, thus pragmatics is the knowledge of the social complications of communication.
Reference


Module 3:
Emotional and Moral Development

Temperament Definition

Temperament is constitutionally based individual differences in reactivity and self regulation, influenced over time by heredity and experience (Rothbart & Derryberry, 1981). By reactivity it is referred to motor, emotional, and attentional responses to internal and external stimuli. Temperament also refers to characteristic mood, activity level, and emotional reactivity. The remarkable changes in behaviour and motivation between infancy, childhood and adolescence create unique challenges for the study of temperament.

Differences in Temperament

Infants show considerable variability in temperament. From the very beginning, some babies seem animated and cheerful while others seem sluggish and ornery. Infants show consistent differences in emotional tone, tempo of activity, and sensitivity to environmental stimuli very early in life. Alexander Thomas and Stella Chess conducted a landmark longitudinal study of the development of temperament. Thomas and Chess wanted to learn about the long-term stability of children’s temperaments. Given this goal, they needed to follow the same children in a longitudinal study to assess their temperamental stability over time. Thomas and Chess identified three basic styles of temperament that were apparent in most of the children. About 40% of the youngsters were easy children who tended to be happy, regular in sleep and eating, adaptable, and not readily upset. Another 15% were slow-to-warm-up children who tended to be less cheery, less regular in their sleep and eating, and slower in adapting to change. These children were wary of new experiences, and their emotional ability. In a longitudinal design investigators observe one group of participants repeatedly over a period of time. This approach
to the study of development is usually contrasted with the cross-sectional approach. In a cross-sectional design investigators compare groups of participants of differing age at a single point in time. For example, in a cross-sectional study an investigator tracing the growth of children’s vocabulary might compare fifty 6-year-olds, fifty 8-year-olds, and fifty 10-year-olds. In contrast, an investigator using the longitudinal method would assemble one group of fifty 6-year-olds and measure their vocabulary at age 6, again at age 8, and once more at age 10. Each method has its advantages and disadvantages. Cross-sectional studies can be completed more quickly, easily, and cheaply than longitudinal studies, which often extend over many years. However, in cross-sectional studies changes that appear to reflect development may really be cohort effects. Cohort effects occur when differences between age groups are due to the groups growing up in different time periods. For example, if you used the cross-sectional method to examine gender roles in groups aged 20, 40, and 60 years, you would be comparing people who grew up before, during, and after reactivity was moderate. Difficult children constituted 10% of the group. They tended to be glum, erratic in sleep and eating, resistant to change, and relatively irritable. The remaining 35% of the children showed mixtures of these three temperaments. A child’s temperament at 3 months was a fair predictor of the child’s temperament at age 10. Infants categorized as “difficult” developed more emotional problems requiring counseling than other children did. Although basic changes in temperament were seen in some children, temperament was generally stable over time (Chess & Thomas, 1996). Some critics have expressed concern because Thomas and Chess’s data were based on parents’ highly subjective ratings of their children’s temperament (Martin & Fox, 2006). But other investigators, using a variety of methods to assess infant temperament, have also found it to be fairly stable. However, the evidence indicates that temperament tends to stabilize a little later (around age 1 or 2) than Thomas and Chess suggested. One prominent example of contemporary research on temperament is the work of Jerome Kagan and his colleagues, who have relied on direct observations of children in their studies. They have found that about 15%–20% of infants display an inhibited temperament characterized by shyness, timidity, and wariness of unfamiliar people, objects, and events. In contrast, about 25%–30% of infants exhibit an uninhibited temperament (the remainder fall in between these extremes). These children are less restrained, approaching unfamiliar people, objects, and events with little trepidation. Evidence suggests that these temperamental styles have a genetic basis and are reasonably stable into young adulthood (Kagan, 2004; Kagan, Reznick, & Snidman, 1999). Moreover, recent research suggests that infant temperament lays the foundation for personality traits in adulthood (Rothbart, 2007). For example, a large-scale, longitudinal study that began with 1037 3-year-old children in 1972–1973 conducted personality assessments of the participants many years later when they reached the age of 26. The 3-year-olds had been classified into five temperament types: inhibited, under controlled, confident, reserved, and well-adjusted. At age 26, these temperaments had significant predictive effects on all three higher-order personality traits examined. These data provide the “longest and strongest evidence to date” that early temperamental characteristics can foretell the contours of adult personality. Although temperament is heavily influenced by heredity and tends to be fairly stable over time, theorists emphasize that temperament is not unchangeable. Parental reactions and other social experiences can gradually massage a child’s temperamental characteristics. As Kagan (2004) puts it, “There is no fixed determinism between an infant temperament and what that child will become 20 years later. Temperament is not destiny”.
Early Emotional Development: Attachment

Do mothers and infants forge lasting emotional bonds in the first few hours after birth? Do early emotional bonds affect later development? These are just two of the questions investigated by psychologists interested in attachment. Attachment refers to the close, emotional bonds of affection that develop between infants and their caregivers. Researchers have shown a keen interest in how infant-mother attachments are formed early in life. Children eventually may form attachments to many people, including their fathers, grandparents, and others. However, a child's first important attachment usually occurs with his or her mother because in most cultures she is the principal caregiver, especially in the early years of life. Contrary to popular belief, infants' attachment to their mothers is not instantaneous. Initially, babies show relatively little in the way of a special preference for their mothers. At 2-3 months of age, infants may smile and laugh more when they interact with their mother, but they generally can be handed over to strangers such as babysitters with little difficulty. This situation gradually changes, and by about 6-8 months, infants begin to show a pronounced preference for their mother’s company and often protest when separated from her (Lamb, Ketterlinus, & Fracasso, 1992). This is the first manifestation of separation anxiety—emotional distress seen in many infants when they are separated from people with whom they have formed an attachment. Separation anxiety, which may occur with fathers and other familiar caregivers as well as with mothers, typically peaks at around 14–18 months and then begins to decline.

Development of Attachment

Attachment theory is the joint work of John Bowlby and Mary Ainsworth (Ainsworth & Bowlby, 1991). Drawing on concepts from ethology, cybernetics, information processing, developmental psychology, and psychoanalysts, John Bowlby formulated the basic tenets of the theory. He thereby revolutionized our thinking about a child’s tie to the mother and its disruption through separation, deprivation, and bereavement. Mary Ainsworth’s innovative methodology not only made it possible to test some of Bowlby’s ideas empirically but also helped expand the theory itself and is responsible for some of the new directions it is now taking. Ainsworth contributed the concept of the attachment figure as a secure base from which an infant can explore the world. In addition, she formulated the concept of maternal sensitivity to infant signals and its role in the development of infant-mother attachment patterns.

Attachment theory is a psychological, evolutionary, and ethological theory concerning relationships between humans. The most important tenet of attachment theory is that a young child needs to develop a relationship with at least one primary caregiver for social and emotional development to occur normally. The theory was formulated by psychiatrist and psychoanalyst John Bowlby. Within attachment theory, infant behaviour associated with attachment is primarily the seeking of proximity to an attachment figure in stressful situations; the caregiver. Infants become attached to adults who are sensitive and responsive in social interactions with them, and who remain as consistent caregivers for some months during the period from about six months to two years of age. During the latter part of this period, children begin to use attachment figures (familiar people) as a secure base to explore from and return to. Parental responses lead to the development of patterns of attachment; these, in turn, lead to
internal working models which will guide the individual's feelings, thoughts and expectations in later relationships. Separation anxiety or grief following the loss of an attachment figure is considered to be a normal and adaptive response for an attached infant. These behaviours may have evolved because they increase the probability of survival of the child. Research by developmental psychologist Mary Ainsworth in the 1960s and 70s underpinned the basic concepts, introduced the concept of the "secure base" and developed a theory of a number of attachment patterns in infants: secure attachment, avoidant attachment and anxious attachment. A fourth pattern, disorganized attachment, was identified later. In the 1980s, the theory was extended to attachment in adults. Other interactions may be construed as including components of attachment behaviour; these include peer relationships at all ages, romantic and sexual attraction and responses to the care needs of infants or the sick and elderly. To formulate a comprehensive theory of the nature of early attachments, Bowlby explored a range of fields, including evolutionary biology, object relations theory (a branch of psychoanalysis), control systems theory, and the fields of ethology and cognitive psychology. After preliminary papers from 1958 onwards, Bowlby published the full theory in the trilogy *Attachment and Loss* (1969–82). In the early days of the theory, academic psychologists criticized Bowlby, and the psychoanalytic community ostracised him for his departure from psychoanalytical tenets; however, attachment theory has since become "the dominant approach to understanding early social development, and has given rise to a great surge of empirical research into the formation of children's close relationships". Later criticisms of attachment theory relate to temperament, the complexity of social relationships, and the limitations of discrete patterns for classifications. Attachment theory has been significantly modified as a result of empirical research, but the concepts have become generally accepted. Attachment theory has formed the basis of new therapies and informed existing ones, and its concepts have been used in the formulation of social and childcare policies to support the early attachment relationships of children.

**Attachment**

Although it is usual for the mother to be the primary attachment figure, infants will form attachments to any caregiver who is sensitive and responsive in social interactions with them. Within attachment theory, *attachment* means an affectional bond or tie between an individual and an attachment figure (usually a caregiver). Such bonds may be reciprocal between two adults, but between a child and a caregiver these bonds are based on the child's need for safety, security and protection, paramount in infancy and childhood. The theory proposes that children attach to carers instinctively, for the purpose of survival and, ultimately, genetic replication. The biological aim is survival and the psychological aim is security. Attachment theory is not an exhaustive description of human relationships, nor is it synonymous with love and affection, although these may indicate that bonds exist. In child-to-adult relationships, the child's tie is called the "attachment" and the caregiver's reciprocal equivalent is referred to as the "care-giving bond". Infants form attachments to any consistent caregiver who is sensitive and responsive in social interactions with them. The quality of the social engagement is more influential than the amount of time spent. The biological mother is the usual principal attachment figure, but the role can be taken by anyone who consistently behaves in a "mothering" way over a period of time. In attachment theory, this means a set of behaviours that involves engaging in lively social interaction with the infant and responding readily to signals and approaches. Nothing in the theory suggests that fathers are not equally likely to become principal
attachment figures if they provide most of the child care and related social interaction. Some infants direct attachment behaviour (proximity seeking) towards more than one attachment figure almost as soon as they start to show discrimination between caregivers; most come to do so during their second year. These figures are arranged hierarchically, with the principal attachment figure at the top. The set-goal of the attachment behavioural system is to maintain a bond with an accessible and available attachment figure. "Alarm" is the term used for activation of the attachment behavioural system caused by fear of danger. "Anxiety" is the anticipation or fear of being cut off from the attachment figure. If the figure is unavailable or unresponsive, separation distress occurs. In infants, physical separation can cause anxiety and anger, followed by sadness and despair. By age three or four, physical separation is no longer such a threat to the child's bond with the attachment figure. Threats to security in older children and adults arise from prolonged absence, breakdowns in communication, emotional unavailability or signs of rejection or abandonment.

**Changes in attachment during childhood and adolescence**

Age, cognitive growth and continued social experience advance the development and complexity of the internal working model. Attachment-related behaviours lose some characteristics typical of the infant-toddler period and take on age-related tendencies. The preschool period involves the use of negotiation and bargaining. For example, four-year-olds are not distressed by separation if they and their caregiver have already negotiated a shared plan for the separation and reunion. Ideally, these social skills become incorporated into the internal working model to be used with other children and later with adult peers. As children move into the school years at about six years old, most develop a goal-corrected partnership with parents, in which each partner is willing to compromise in order to maintain a gratifying relationship. By middle childhood, the goal of the attachment behavioural system has changed from proximity to the attachment figure to availability. Generally, a child is content with longer separations, provided contactor the possibility of physically reuniting, if needed is available. Attachment behaviours such as clinging and following decline and self-reliance increases. By middle childhood (ages 7–11), there may be a shift towards mutual co-regulation of secure-base contact in which caregiver and child negotiate methods of maintaining communication and supervision as the child moves towards a greater degree of independence. In early childhood, parental figures remain the centre of a child's social world, even if they spend substantial periods of time in alternative care. This gradually lessens, particularly during the child's entrance into formal schooling. The attachment models of young children are typically assessed in relation to particular figures, such as parents or other caregivers. There appear to be limitations in their thinking that restrict their ability to integrate relationship experiences into a single general model. Children usually begin to develop a single general model of attachment relationships during adolescence, although this may occur in middle childhood. Relationships with peers have an influence on the child that is distinct from that of parent-child relationships, though the latter can influence the peer relationships children form. Although peers become important in middle childhood, the evidence suggests peers do not become attachment figures, though children may direct attachment behaviours at peers if parental figures are unavailable. Attachments to peers tend to emerge in adolescence, although parents continue to be attachment figures. With
adolescents, the role of the parental figures is to be available when needed while the adolescent makes excursions into the outside world.

Attachment patterns

Much of attachment theory was informed by Mary Ainsworth's innovative methodology and observational studies, particularly those undertaken in Scotland and Uganda. Ainsworth's work expanded the theory's concepts and enabled empirical testing of its tenets. Using Bowlby's early formulation, she conducted observational research on infant-parent pairs (or dyads) during the child's first year, combining extensive home visits with the study of behaviours in particular situations. This early research was published in 1967 in a book titled Infancy in Uganda. Ainsworth identified three attachment styles, or patterns, that a child may have with attachment figures: secure, anxious-avoidant (insecure) and anxious-ambivalent or resistant (insecure). She devised a procedure known as the Strange Situation Protocol as the laboratory portion of her larger study, to assess separation and reunion behaviour. This is a standardized research tool used to assess attachment patterns in infants and toddlers. By creating stresses designed to activate attachment behaviour, the procedure reveals how very young children use their caregiver as a source of security. Carer and child are placed in an unfamiliar playroom while a researcher records specific behaviours, observing through a one-way mirror. In eight different episodes, the child experiences separation from/reunion with the carer and the presence of an unfamiliar stranger. Ainsworth's work in the United States attracted many scholars into the field, inspiring research and challenging the dominance of behaviourism. Further research by Mary Main and colleagues at the University of California, Berkeley identified a fourth attachment pattern, called disorganized/disoriented attachment. The name reflects these children's lack of a coherent coping strategy. The type of attachment developed by infants depends on the quality of care they have received.

Types of Bowlby’s theory of attachment (Child and caregiver behaviour patterns before the age of 18 months)

<table>
<thead>
<tr>
<th>ATTACHMENT PATTERN</th>
<th>CHILD</th>
<th>CAREGIVER</th>
</tr>
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<tbody>
<tr>
<td>Secure</td>
<td>Uses caregiver as a secure base for exploration. Protests caregiver's departure and seeks proximity and is comforted on return, returning to exploration. May be comforted by the stranger but shows clear preference for the caregiver</td>
<td>Responds appropriately, promptly and consistently to needs.</td>
</tr>
<tr>
<td>Avoidant</td>
<td>Little affective sharing in play. Little or no distress on departure, little or no visible response to return, ignoring or turning away with no effort to maintain contact if picked up. Treats the stranger similarly to the caregiver.</td>
<td>Little or no response to distressed child. Discourages crying and encourages independence.</td>
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Ambivalent/Resistant
Unable to use caregiver as a secure base, seeking proximity before separation occurs. Distressed on separation with ambivalence, anger, reluctance to warm to caregiver and return to play on return. Preoccupied with caregiver's availability, seeking contact but resisting angrily when it is achieved. Not easily calmed by stranger.

Inconsistent between appropriate and neglectful responses.

Disorganized
Stereotypes on return such as freezing or rocking. Lack of coherent attachment strategy shown by contradictory, disoriented behaviours such as approaching but with the back turned

Frightened or frightening behaviour, intrusiveness, withdrawal, negativity, role confusion, affective communication errors and maltreatment.

Factors Affecting Attachment
The presence of an attachment is distinct from its quality. Infants form attachments if there is someone to interact with, even if mistreated. Individual differences in the relationships reflect the history of care, as infants begin to predict the behaviour of caregivers through repeated interactions. The focus is the organisation (pattern) rather than quantity of attachment behaviours. Insecure attachment patterns are non-optimal as they can compromise exploration, self-confidence and mastery of the environment. However, insecure patterns are also adaptive, as they are suitable responses to caregiver unresponsiveness. For example, in the avoidant pattern, minimising expressions of attachment even in conditions of mild threat may forestall alienating caregivers who are already rejecting, thus leaving open the possibility of responsiveness should a more serious threat arise. Around 65% of children in the general population may be classified as having a secure pattern of attachment, with the remaining 35% being divided between the insecure classifications. Recent research has sought to ascertain the extent to which a parent's attachment classification is predictive of their children's classification. Parents' perceptions of their own childhood attachments were found to predict their children's classifications 75% of the time. Over the short term, the stability of attachment classifications is high, but becomes less so over the long term. It appears that stability of classification is linked to stability in caregiving conditions. Social stressors or negative life events such as illness, death, abuse or divorce are associated with instability of attachment patterns from infancy to early adulthood, particularly from secure to insecure. Conversely, these difficulties sometimes reflect particular upheavals in people's lives, which may change. Sometimes, parents' responses change as the child develops, changing classification from insecure to secure. Fundamental changes can and do take place after the critical early period. Physically abused and neglected children are less likely to develop secure attachments, and their insecure classifications tend to persist through the pre-school years. Neglect alone is associated with insecure attachment organisations, and rates of disorganized attachment are markedly elevated in maltreated infants.
This situation is complicated by difficulties in assessing attachment classification in older age groups. The Strange Situation procedure is for ages 12 to 18 months only; adapted versions exist for pre-school children. Techniques have been developed to allow verbal ascertainment of the child's state of mind with respect to attachment. An example is the "stem story", in which a child is given the beginning of a story that raises attachment issues and asked to complete it. For older children, adolescents and adults, semi-structured interviews are used in which the manner of relaying content may be as significant as the content itself. However, there are no substantially validated measures of attachment for middle childhood or early adolescence (approximately 7 to 13 years of age). Some authors have questioned the idea that a taxonomy of categories representing a qualitative difference in attachment relationships can be developed. Examination of data from 1,139 15-month-olds showed that variation in attachment patterns was continuous rather than grouped. This criticism introduces important questions for attachment typologies and the mechanisms behind apparent types. However, it has relatively little relevance for attachment theory itself, which "neither requires nor predicts discrete patterns of attachment".

**Significance of attachment patterns**

There is an extensive body of research demonstrating a significant association between attachment organisations and children's functioning across multiple domains. Early insecure attachment does not necessarily predict difficulties, but it is a liability for the child, particularly if similar parental behaviours continue throughout childhood. Compared to that of securely attached children, the adjustment of insecure children in many spheres of life is not as soundly based, putting their future relationships in jeopardy. Although the link is not fully established by research and there are other influences besides attachment, secure infants are more likely to become socially competent than their insecure peers. Relationships formed with peers influence the acquisition of social skills, intellectual development and the formation of social identity. Classification of children's peer status (popular, neglected or rejected) has been found to predict subsequent adjustment. Insecure children, particularly avoidant children, are especially vulnerable to family risk. Their social and behavioural problems increase or decline with deterioration or improvement in parenting. However, an early secure attachment appears to have a lasting protective function. As with attachment to parental figures, subsequent experiences may alter the course of development. The most concerning pattern is disorganized attachment. About 80% of maltreated infants are likely to be classified as disorganized, as opposed to about 12% found in non-maltreated samples. Only about 15% of maltreated infants are likely to be classified as secure. Children with a disorganized pattern in infancy tend to show markedly disturbed patterns of relationships. Subsequently their relationships with peers can often be characterised by a "fight or flight" pattern of alternate aggression and withdrawal. Affected maltreated children are also more likely to become maltreating parents. A minority of maltreated children do not, instead achieving secure attachments, good relationships with peers and non-abusive parenting styles. The link between insecure attachment, particularly the disorganized classification, and the emergence of childhood psychopathology is well-established, although it is a non-specific risk factor for future problems, not a pathology or a direct cause of pathology in itself. In the classroom, it appears that ambivalent children are at an elevated risk for internalising disorders, and avoidant and disorganized children, for externalising disorders.
One explanation for the effects of early attachment classifications may lie in the internal working model mechanism. Internal models are not just "pictures" but refer to the feelings aroused. They enable a person to anticipate and interpret another's behaviour and plan a response. If an infant experiences their caregiver as a source of security and support, they are more likely to develop a positive self-image and expect positive reactions from others. Conversely, a child from an abusive relationship with the caregiver may internalise a negative self-image and generalise negative expectations into other relationships. The internal working models on which attachment behaviour is based show a degree of continuity and stability. Children are likely to fall into the same categories as their primary caregivers indicating that the caregivers' internal working models affect the way they relate to their child. This effect has been observed to continue across three generations. Bowlby believed that the earliest models formed were the most likely to persist because they existed in the subconscious. Such models are not, however, impervious to change given further relationship experiences; a minority of children have different attachment classifications with different caregivers.

There is some evidence that gender differences in attachment patterns of adaptive significance begin to emerge in middle childhood. Insecure attachment and early psychosocial stress indicate the presence of environmental risk (for example poverty, mental illness, instability, minority status, violence). This can tend to favour the development of strategies for earlier reproduction. However, different patterns have different adaptive values for males and females. Insecure males tend to adopt avoidant strategies, whereas insecure females tend to adopt anxious/ambivalent strategies, unless they are in a very high risk environment. Adrenarche is proposed as the endocrine mechanism underlying the reorganization of insecure attachment in middle childhood.

**Attachment in adults**

Attachment theory was extended to adult romantic relationships in the late 1980s by Cindy Hazan and Phillip Shaver. Four styles of attachment have been identified in adults: secure, anxious-preoccupied, dismissive-avoidant and fearful-avoidant. These roughly correspond to infant classifications: secure, insecure-ambivalent, insecure-avoidant and disorganized/disoriented. Securely attached adults tend to have positive views of themselves, their partners and their relationships. They feel comfortable with intimacy and independence, balancing the two. Anxious-preoccupied adults seek high levels of intimacy, approval and responsiveness from partners, becoming overly dependent. They tend to be less trusting, have less positive views about themselves and their partners, and may exhibit high levels of emotional expressiveness, worry and impulsiveness in their relationships. Dismissive-avoidant adults desire a high level of independence, often appearing to avoid attachment altogether. They view themselves as self-sufficient, invulnerable to attachment feelings and not needing close relationships. They tend to suppress their feelings, dealing with rejection by distancing themselves from partners of whom they often have a poor opinion. Fearful-avoidant adults have mixed feelings about close relationships, both desiring and feeling uncomfortable with emotional closeness. They tend to mistrust their partners and view themselves as unworthy. Like dismissive-avoidant adults, fearful-avoidant adults tend to seek less intimacy, suppressing their feelings.

**Emotional Behaviour in Infancy to Adolescence**
Gains in representation, language, and self-concept support emotional development in early childhood. Between ages 2 and 6, children make strides in the emotional abilities that, collectively, researchers refer to as emotional competence. First, preschoolers gain in emotional understanding, becoming better able to talk about feelings and to respond appropriately to others’ emotional signals. Second, they become better at emotional self-regulation—in particular, at coping with intense negative emotion. Finally, preschoolers more often experience self-conscious emotions and empathy, which contribute to their developing sense of morality. Parenting strongly influences preschoolers’ emotional competence. Emotional competence, in turn, is vital for successful peer relationships and overall mental health.

**Cognitive Development and Emotional Understanding**

Young preschoolers refer to causes, consequences, and behavioral signs of emotion, and over time their understanding becomes more accurate and complex. By age 4 to 5, they correctly judge the causes of many basic emotions (“He’s happy because he’s swinging very high”; “He’s sad because he misses his mother”). Preschoolers’ explanations tend to emphasize external factors over internal states, a balance that changes with age. Earlier we discussed that after age 4, children appreciate that both desires and beliefs motivate behavior. Once these understandings are secure, children’s grasp of how internal factors can trigger emotion expands. Preschoolers are good at inferring how others are feeling based on their behavior. For example, they can tell that a child who jumps up and down and claps his hands is probably happy, and one who is tearful and withdrawn is sad (Widen & Russell, 2011). And they are beginning to realize that thinking and feeling are interconnected—that a person reminded of a previous sad experience is likely to feel sad and that unpleasant feelings can be eased by changing one’s thoughts. Furthermore, they come up with effective ways to relieve others’ negative emotions, such as hugging to reduce sadness. Overall, preschoolers have an impressive ability to interpret, predict, and change others’ feelings. At the same time, preschoolers have difficulty interpreting situations that offer conflicting cues about how a person is feeling. When shown a picture of a happy-faced child with a broken bicycle, 4- and 5-year-olds tended to rely only on the emotional expression: “He’s happy because he likes to ride his bike.” Older children more often reconciled the two cues: “He’s happy because his father promised to help fix his broken bike” (Gnepp, 1983; Hoffer & Badzinski, 1989). As in their approach to Piagetian tasks, young children focus on the most obvious aspect of a complex emotional situation to the neglect of other relevant information.”

**Social Experience and Emotional Understanding**

The more parents label emotions, explain them, and express warmth and enthusiasm when conversing with preschoolers, the more “emotion words” children use and the better developed their emotional understanding. Discussions focusing on negative experiences or involving disagreements are particularly helpful. In one study, mothers engaged in more detailed dialogues about causes of emotion and more often validated their preschoolers’ feelings when discussing negative (as opposed to positive) topics. And the more elaborative the discussions, the higher the children scored in emotional understanding. In another study, when mothers explained feelings, negotiated, and compromised during conflicts with their 2½-year-olds, their children, at age 3, were advanced in emotional understanding and used similar strategies to resolve disagreements. Such dialogues seem to help children reflect on the causes and consequences of
emotion while also modeling mature communication skills. Furthermore, preschoolers who are securely attached better understand emotion. Attachment security, as we have seen, is related to more elaborative parent–child narratives, including discussions of feelings that highlight the emotional significance of past events. Knowledge about emotion helps children in their efforts to get along with others. As early as 3 to 5 years of age, it is related to friendly, considerate behavior, constructive responses to disputes with age mates, and perspective-taking ability. As children learn about emotion from interacting with adults, they engage in more emotion talk with siblings and friends. And preschoolers who refer to feelings when interacting with playmates are better liked by their peers. Children seem to recognize that acknowledging others’ emotions and explaining their own enhance the quality of relationships.

**Emotional Self-Regulation**

Language also contributes to preschoolers’ improved emotional self-regulation, or ability to manage the experience and expression of emotion. By age 3 to 4, children verbalize a variety of strategies for adjusting their emotional arousal to a more comfortable level. For example, they know they can blunt emotions by restricting sensory input (covering their eyes or ears to block out a scary sight or sound), talking to themselves (“Mommy said she’ll be back soon”), or changing their goals (deciding that they don’t want to play anyway after being excluded from a game). As children use these strategies, emotional outbursts decline. Effortful control—in particular, inhibiting impulses and shifting attention—is vital in managing emotion in early childhood. Three-year-olds who can distract themselves when frustrated tend to become cooperative school-age children with few problem behaviors. By age 3, effortful control predicts children’s skill at portraying an emotion they do not feel—for example, reacting cheerfully after receiving an undesirable gift. These emotional “masks” are largely limited to the positive feelings of happiness and surprise. Children of all ages (and adults as well) find it harder to act sad, angry, or disgusted than pleased. To promote good social relations, most cultures teach children to communicate positive feelings and inhibit unpleasant ones.

Temperament affects the development of emotional self-regulation. Children who experience negative emotion intensely find it harder to inhibit feelings and shift attention away from disturbing events. They are more likely to be anxious and fearful, respond with irritation to others’ distress, react angrily or aggressively when frustrated, and get along poorly with teachers and peers.

To avoid social difficulties, emotionally reactive children must develop effective emotion regulation strategies. By watching parents manage their feelings, children learn strategies for regulating their own. Parents who are in tune with their own emotional experiences tend to be supportive and patient with their preschoolers, offering suggestions and explanations of emotion-regulation strategies that strengthen children’s capacity to handle stress. In contrast, when parents rarely express positive emotion, dismiss children’s feelings as unimportant, and fail to control their own anger, children’s emotion management and psychological adjustment suffer. And because emotionally reactive children become increasingly difficult to rear, they are often targets of ineffective parenting, which compounds their poor self-regulation. Adult-child conversations that prepare children for difficult experiences also foster emotional self-regulation.
Parents who discuss what to expect and ways to handle anxiety offer coping strategies that children can apply. Nevertheless, preschoolers’ vivid imaginations and incomplete grasp of the distinction between appearance and reality make fears common in early childhood.

**Piaget on Moral Development**

Piaget believed that observing children playing games and querying them about the rules provided a realistic “lab on life” for understanding how morality principles develop. In his book *The Moral Judgment of the Child* (Piaget, 1932/1962), he studied children playing the game of marbles. The fact that only boys played this game seemed to impose a limitation on the generality of his findings, so he also studied a girl’s game called “îlet cachant”, a kind of primitive hide-and-seek. But his most important observations were made on the boys – a fact that incurred later criticism, as will be seen shortly. Piaget often used a practiced technique of feigned naivety: He pretended to be ignorant of the rules of the games and asked the children to explain them to him. In this way he was able to comprehend the way that the children themselves understood the rules, and to observe as well how children of different ages related to the rules and the game. On first thought it might seem odd that Piaget believed he could learn all important aspects of moral development by observing children’s play. But as Ginsburg and Opper (1988, p. 96) note, “On closer inspection it would seem as if the rules governing the game of marbles fulfill all the defining conditions of a moral system. The rules control how individuals behave toward one another in terms of the actions which comprise the game, they determine individual and property rights, and they are a cultural product which has been passed down from generation to generation. The rules have been developed largely by children. Therefore, the child’s conception of the game is subject to little adult influence.” (As an interesting side note it should be mentioned that studying game strategies to learn about behavior and morality is now very much an accepted part of research in psychology and economics. Game theory can be used to simulate competitive or cooperative conditions in which either selfish strategy benefit only the individual, or cooperative strategies can mutually benefit all parties.

A second technique used by Piaget in studying moral understanding was to relate a short story or scenario that described some form of misbehavior by a child or by an adult. He then presented the children with possible corrective actions that might be meted out to the offender and asked the children to tell him which were fair and just and which were not, and why. If a child neglects a chore, for example, after repeated requests, what is an appropriate punishment or correction? Here Piaget distinguished between expiation (atonement) and reciprocity as punishment strategies. Expiation meant that some form of punitive action (e.g., spanking; confinement) would be invoked in which the offender must “pay the price” for the offense. In contrast, reciprocity implies setting things right. With reciprocity the child must be made to see the consequences of his or her neglect, and to clearly understand the need to behave in a more cooperative manner.

**Piaget’s Stages of Moral Development**

*Children’s Understanding of Rules*
Piaget observed four stages in the child’s development of moral understanding of rules, based largely on his observation of children’s games:

- The first stage characterizes the sensorimotor period of development (children under four years) in which the child merely handles the marbles in terms of his existing motor schemes. Play is purely an individual endeavor, and “...one can talk only of motor rules and not of truly collective rules” (Piaget, 1932/1962).

- In the second stage, about ages four to seven, game playing is egocentric; children don’t understand rules very well, or they make them up as they go along. There is neither a strong sense of cooperation nor of competition. The egocentric children at the preoperational stage seem to have “collective monologues” rather than true dialogs, these observations do not seem surprising.

- The third stage, at about ages seven to ten or eleven, is characterized by incipient cooperation. Interactions are more social, and rules are mastered and observed. Social interactions become more formalized as regards rules of the game. The child learns and understands both cooperative and competitive behavior. But one child’s understanding of rules may still differ from the next, thus mutual understanding still tends to be incomplete.

- In the fourth stage, beginning at about age eleven or twelve, cooperation is more earnest and the child comes to understand rules in a more legalistic fashion. Piaget calls this the stage of genuine cooperation in which “the older child shows a kind of legalistic fascination with the rules. He enjoys settling differences of opinion concerning the rules, inventing new rules, and elaborating on them. He even tries to anticipate all the possible contingencies that may arise” (Ginsburg & Opper, 1988). But in terms of cognitive development this stage overlaps Piaget’s formal operational stage; thus here the concern with abstraction and possibility enters the child’s imagination.

Children’s Moral Judgments

Piaget’s studies of moral judgments are based both on children’s judgments of moral scenarios and on their interactions in game playing. In terms of moral judgments, Piaget found that younger children (around ages four to seven) thought in terms of moral realism or moral heteronomy. These terms connote an absolutism, in which morality is seen in terms of rules that are fixed and unchangeable (heteronomy means “from without”). Guilt is determined by the extent of violation of rules rather than by intention. The second stage in making moral judgments comes later, usually around age 10, when children come to realize that rules have arbitrariness and are formed by mutual consent for reasons of fairness and equity. This applies equally to society’s laws, game rules, and familial standards of behavior. Older children realize that rules are not fixed and absolute, but that they can be changed as the need arises. Piaget called this second stage moral autonomy. Once again, egocentricism plays into moral heteronomy, as the child is unable to see rules from the broader perspective of another child or adult, or of society in
general. Conversely, moral autonomy requires just such an ability. Piaget also noted that the stages of moral understanding are not entirely discreet. Children become capable of certain autonomous judgments before others, depending on the situation, just as horizontal décalage characterized the understanding of his conservation tasks for cognitive development. In actuality, the stages of morality overlap one another to some degree.

**Gender and Moral Development**

Piaget found that the games that girls played were nowhere near as complex as the boys and their marbles in terms of rules and options. Piaget did compare the stages of morality between the two sexes, noting both parallels and some differences. Both have stages of moral heteronomy and autonomy, for example. But the fact that the girls’ games were simpler makes precise comparisons difficult. Piaget stated that: “The most superficial observation is sufficient to show that in the main the legal sense is far less developed in little girls than in boys. We did not succeed in finding a single collective game played by girls in which there were as many rules, and above all, as fine and consistent an organization and codification of these rules as in the game of marbles”. Piaget seemed to be saying that conclusions gender differences are necessarily tenuous because the observations were superficial and due to the lack of opportunity - the girls’ games were simpler, and therefore comparisons were difficult. Yet he did see girls as being less concerned with (and less rigid about) rules in general, and more ready to relax them: They appeared to be less concerned with “legalities.” But elsewhere Piaget appeared to equate concern with legalities as signs of advanced development: “the juridicomoral discussions of the fourth stage [of moral development] may be compared to formal reasoning in general”. Do girls then have a less sophisticated, and therefore deficient sense of moral understanding? Carol Gilligan (1982) believed that this was Piaget’s message. She criticized Piaget and other (male) psychologists of harboring negative views of feminine morality, as will be seen following a consideration of Lawrence Kohlberg’s extension of Piaget’s work. But in defense of Piaget, Eliot Turiel (2006) noted that “In considering Piaget’s ideas, Gilligan imposes certainty where ambiguity exists. Piaget did maintain that girls are less interested than boys in ‘legal elaboration’ and that ‘the legal sense is far less developed in little girls than in boys’ (Piaget, 1932/[1962])” but that “ in Piaget’s view, the developmentally advanced level of autonomous morality was organized by concerns with mutuality, reciprocity, and cooperation. Piaget saw a strict legal sense for fixed rules that left little room for innovation and tolerance as part of the less advanced form of heteronomous morality. Thus, it is not at all clear that Piaget regarded girls to be less advanced than girls because he thought that girls were oriented to tolerance, innovation with rules, and cooperation”. Thus Piaget’s observations do suggest that he observed some gender differences, but these differences are somewhat nuanced; and indeed, one could say that he actually saw girls’ moral understanding as in some ways actually more advanced than boys’.

**Kohlberg and Moral Development**

Lawrence Kohlberg admired Piaget’s approach to studying children’s conceptions of morality. If Piaget saw children as little logicians, Kohlberg viewed them as moral philosophers. Unlike so many other psychologists who concerned themselves with morality, such as Freud,
Skinner, and later Albert Bandura in his research on observation learning and role models, Kohlberg believed that it was not possible to study moral understanding without also coming to grips with philosophy, or more specifically, what could possibly be meant by “morality”.

In brief, Kohlberg assessed morality by asking children to consider certain moral dilemmas - situations in which right and wrong actions are not always clear. He was not concerned with whether the children decided that certain actions were right or wrong, but with their reasoning - at how they arrived at their conclusions. The story of “Heinz Steals the Drug” is one of his best known examples (Kohlberg, 1963). In Europe, a woman was near death from a special kind of cancer. There was one drug that the doctors thought might save her. It was a form of radium that a druggist in the same town had recently discovered. The drug was expensive to make, but the druggist was charging ten times what the drug cost him to make. He paid $200 for the radium and charged $2,000 for a small dose of the drug. The sick woman’s husband, Heinz, went to everyone he knew to borrow the money, but he could only get together about $1,000 which is half of what it cost. He told the druggist that his wife was dying and asked him to sell it cheaper or let him pay for it later. But the druggist said: “No, I discovered the drug and I’m going to make money from it.” So Heinz got desperate and broke into the man’s store to steal the drug for his wife. Should the husband have done that?

Kohlberg’s Levels and Stages of Morality

Based on his study of children’s responses to such dilemmas, Kohlberg (1958, 1963) expanded Piaget’s two stages into six, organized into three levels - each level consisting of two stages - as follows. Note that cross-references are made, where appropriate, to Piagetian and Freudian levels of development.

Level I: Preconventional Morality.

The preconventional child thinks of morality in terms of the consequences of disobedience to adult rules in order to avoid punishment. Behaviors are “good” or “bad” depending on their consequences, or in other words, behavior is guided by rewards and punishments. The child at this stage does not comprehend the rules of society.

• Stage 1. This first stage has been called “punishment and obedience,” or “might makes right.” Obey your parents, or these powerful authority figures will physically punish you. The child’s understanding is that punishment must be avoided for her/his own comfort. The child is still unable to view the world from the perspective of others (Piaget’s egocentricity), and behavior is largely guided by Freud’s pleasure principle (is id dominated) - although the ego begins to emerge as the child understands that reality calls for discretion.

• “Stage 2. By stage 2 the child recognizes that there is mutual benefit in cooperation. This stage has been called “instrumentalism” or “look out for number one” or “what’s in it for me.” The child is a bit less egocentric at this stage, recognizing that if one is good to others then they in terms will be good to you. There is now the notion that everyone looks out for their own needs, but that proper social exchanges are on a “tit-for-tat” basis. In Freudian terms, the reality principle has emerged to a greater extent at this stage.
Level II: Conventional Morality

At this level the child begins to grasp social rules and gains a more objective perspective on right and wrong. Freud would equate this level with superego development, or the formation of a conscience. In these stages Piaget’s egocentrism has largely or entirely vanished.”

- Stage 3. Stage 3 can be called “interpersonal relationships” or “good girl/boy.” The major motivating factor in good behavior is social approval from those closest to the child.

- Stage 4. Maintaining social conventions or “law and order” are brief but apt descriptions of the fourth stage. This sense of order becomes generalized beyond close others to society at large. The concept of “doing one’s duty” is crucial here.

Level III: Postconventional Morality

At this level the emphasis is no longer on conventional, societal standards of morality, but rather on personal or idealized principles.

- Stage 5. This can be called the “social contract” stage. The understanding is that laws, rules, and regulations are created for the mutual benefit of all citizens. Laws that are unjust ought to be changed. People at this stage understand and believe in democracy in action.

- Stage 6. This is the stage of “universal ethical principles.” Right and wrong are not determined by rules and laws, but by individual reflection on what is proper behavior. One might think here of Kant’s categorical imperative in which right and wrong apply equally to all, without regard to consequences except that modern ethicists understand the importance of the situation: What is wrong in most circumstances (e.g., lying) might be justifiable in others. But essentially, personal ethical values (e.g., a belief that all life is sacred) take precedence over any and all laws and conventions.

In other words, laws are useful only as long as they serve the common good. Civil disobedience (such as the civil rights “sitins” in the 1960s) is justified by the circumstances (in this case segregation of the races). As a biblical example, think of Jesus, who said in response to the Pharisees that “The Sabbath was made for man, and not men for the Sabbath.” Kohlberg believed that few people actually reach this stage, but those who do are of the stature of Mohandas Gandhi or Martin Luther King, Jr.

Kohlberg’s theory is really one of cognitive development (per Piaget) as applied to moral understanding because he believed that children developed their moral principles primarily through thinking about them. The progression through the stages cannot be accounted for by simple maturation or development of the nervous system. The child must grapple with these moral issues as they arise, and as with Piaget, disequilibrium occurs; for instance, when a child realizes that punishment for an unintentional infraction seems somehow unfair. Nor did Kohlberg believe that moral understanding was primarily due to learning of social mores because neither parents nor peers can teach new modes of thinking. Kohlberg’s (1958) doctoral dissertation, upon which he formulated his basic theory, studied 84 boys, most of whom he continued to study over the next couple of decades in his longitudinal research. As a result of his ongoing research he refined his methodology. He also dropped the sixth stage from his research.
program because so few people ever seem to reach this stage. Thus although this stage is not well-studied, it still retains some theoretical interest. But it is well to remember that the average person does not even attain the fifth stage; post conventional morality is rare, even among adults. Although research generally supports Kohlberg’s stage theory insofar as children’s understanding of morality is concerned there are some notable exceptions.

Criticisms and Limitations of Kohlberg’s Stage Theory

Cognition versus Affect

Kohlberg’s studies stressed the cognitive factors in moral understanding. It should be easy to see in reviewing his stages that the higher levels require more advanced levels of cognitive development. But moral judgments can also be influenced by emotions. This is evident, for example, when a jury bases their verdict not strictly on the right or wrong in a defendant’s actions, but also on their impression of his or her character.

Moral Understanding versus Moral Action

An assumption that one might all too easily make is that a person’s moral understanding guides her moral behavior. While this is undoubtedly true to some extent, it cannot be said that moral behavior is anything close to perfectly predictable based on even the reliable classification of a person or child into one of Kohlberg’s levels. To put it differently, understanding what is right does not necessarily translate into doing what is right. Social psychologists have come to understand the tremendous power of the situation in determining the course of behavior, as opposed to belief in abstract principles of morality. Someone may do a good deed like stopping to help a stranded motorist for any number of reasons; because it “seems right,” because of guilt, because it will increase one’s own self-image as a “good” person, because it might bring recognition from others, or simply because one has the time. One might fail to help because there are plenty of other people passing by, and surely one of them will stop (social psychologists refer to this diffusion of responsibility). According to Harre (1983) people respond to different kinds of situations utilizing different levels of morality; and these are based more on societal expectations than on abstract moral reasoning. For example, he believed that people in the business world operate more at stage 2 (self-interest); that married couples are guided by stage 3 (mutual exchanges guided by the expectation of approval); and that the legal system is based on stage 4.

Moral Hypocrisy in Expressed Attitudes versus Actual Behavior?

Writing in the Atlantic Monthly political commentator and satirist P. J. O’Rourke (2006) discovered that the political and social values portrayed in recent Gallup polls do not seem to match up with reality, as least as he sees it. Still, it can be argued that behaviors which are congruent with Kohlberg’s stage descriptions depend on a cognitive understanding of that particular level of morality; which in turn assumes a certain degree of cognitive development. In other words, a person may have developed a high degree of moral reasoning in Kohlberg’s hierarchy, yet under some conditions engage in behaviors that do not at all exemplify that presumed level of understanding. Furthermore, the motivations for a person’s specific actions in a given situations are multifarious.

Cultural Variations
As with Piaget’s stages of cognitive development, Kohlberg believed his stages to be universal. Despite differences in cultures with regard to manners and morals, Kohlberg still believed in the universality of his stages because they referred to general patterns of thinking rather than to specific cultural ideals. For example, if showing disrespect for one’s father is taken more seriously in Shanghai than in Nova Scotia, this might differentially affect children’s beliefs about the severity of punishment for such behavior within these two cultures, yet their reasoning processes would still be the same. But still, the thinking underlying the stages may itself differ across cultures. Kohlberg’s concepts of post conventional morality reflect Western philosophical ideals based on Enlightenment values of individualism freedom and rights. Kohlberg himself questioned the universality of the last two stages, finding these rarely reached by most of those he studied. His post conventional stage 6 in particular might represent a philosophical ideal that is accessible to select sages, such as Socrates, Buddha, Jesus, Gandhi, and so on; but certainly not to the average person. Also, just as Piaget’s formal level of cognitive development may never emerge in certain cultures in which abstract reasoning (at least as we in our culture understand it), even stage 4 may not be attained in some village-centered agrarian or hunting/gathering cultures. Also in contrast to individualistic cultures (such as the United States, Australia, and Western Europe), which place a high value on independence, collectivist cultures value harmony and interdependence within the group (family, community, or company), and these concerns usually outweigh those of the individual. To varying extents Asian, African, and Latin American cultures tend to be more collectivist than our own. Differences in moral reasoning can thus be expected based on those different values. A person from a collectivist society might place the responsibility for obtaining the drug less on Heinz himself and more on his family or on his community. Here, Kohlberg’s scoring system, which positions a person at a higher level of morality (stage 4, for instance) based on her/his understanding of justice in a legalistic sense, would appear flawed when viewed in the context of a differing cultural perceptions.

Gender Differences.

As was noted, Kohlberg’s original work was done only on boys. Gilligan (1982) found this troubling; first, because results were necessarily limiting, based as they were on just one gender, and second, because Gilligan believed that girls and women use different standards from boys and men in making moral judgments.

Reference


