

introduction

In this section we shall discuss behaviour as human activity, educational psychology and how the classroom teacher collects psychological data on pupils.

objectives

After reading the material in this section you should be able to:

- list four observable human behaviours
- list four unobservable human behaviours
- indicate two data on a pupil and their uses in classroom
- state three reasons why the teacher should know his pupil

Psychology has been defined as the science of human behaviour. We will examine first what is meant by science. We will also examine what is meant by human behaviour.

The term science used to mean “ordered and orderly knowledge”. You see, disorderly knowledge leads to mental confusion. Orderly knowledge gives you a mental ‘grasp’ of things or what is called comprehension. With ordered knowledge, you can see the larger picture more clearly, enabling you to say, “I understand”. Science is aimed at improved or increased understanding.

As the term is generally used by psychologists, human behaviour refers to more than just the observable actions ordinarily thought of as “behaviour”. For instance, “Kofi’s behaviour today was very bad”. Some psychologists do prefer to limit the term to mean only observable behaviour such as jumping, climbing, fighting, reading, etc. Most psychologists however, use the term to mean functions that are not directly observable such as thoughts and feelings as well. You can see the result of thinking and feelings but not the processes. Dear learner, another term used in psychology to refer to behaviour is response. Response means “behaviour in reaction to a stimulus”. Stimulus simply means a condition that elicits, produces or gives a response.

As a simple illustration of this, consider what you do when you are handed a hot yam. You drop it! Initially, your “response” is limited to the immediate reaction: dropping the hot yam. But, unless you are very slow, you have also learned something and will change your subsequent behaviour: you will avoid handling hot things. Thus, according to the broader meaning given it, your “response” was not merely the reaction of dropping one hot yam, but an educational response as well that affects your future actions. Like behaviour, the term response was enlarged to include human functioning that is not directly observable.

Human behaviour does not occur in a vacuum. It occurs in an environment. The environment may be physical, or it may be social. The same physical environment may be different psychologically for the infant, the child, the adolescent, the young adult, and the old adult. Any definition of behaviour

is incomplete unless it includes specification of the environment in which the behaviour takes place.

The work environment, for example, is obviously different from the home environment. You act differently in one than in the other. At work you will be more formal and you may perform tasks that may not immediately please you. At home you are less formal and will more often tend to do what immediately pleases you.

Activity 1.1

- a) List three observable behaviours apart from what has been identified in this section.

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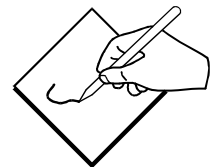
- b) State two unobservable behaviours

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Educational Psychology and its implications in the classroom

Educational psychology is the psychology of teaching and learning. It focuses on the study of learning outcomes and instructional processes directly related to the classroom and the school such as amount of instructional time or individual differences in the classroom. It makes use of psychology and psychological methods to the study of development, learning, motivation, instruction, assessment and related issues that influence the interaction of teaching and learning.

Educational psychology is relevant to the classroom teacher in the following ways:

- To understand the characteristics of learners in childhood, adolescence and adulthood educational psychology develops and applies theories of human development. For example, educational psychologists have researched in instructional applicability of Jean Piaget's theory of human development. The theorist believes that children mature through four stages of cognitive capability. He maintains that children are not capable of abstract logical thought until they are more than eleven years and therefore younger children need to be taught using concrete objects and many examples.
- Albert Bandura, a psychologist emphasized the process of observational learning in which a learner's behaviour changes as a result of observing

others behaviour and its consequences. The theory identified several factors that determine whether observing a model will affect behavioural or cognitive change. The factors include the

- perceived prestige and competence of the model
 - consequences received by the model
 - goal of the learner
 - the learner's self efficacy
- The systematic design of instructional materials, activities and interactive environments for learning is broadly informed by theories and research in education and psychology. For example, in defining learning goals and objectives, teachers often use a taxonomy of educational objectives created by Benjamin Bloom (Bloom's taxonomy).
 - Research on classroom management and pedagogy is conducted to guide the practice of teaching and form a foundation for teacher education programme. The goals of classroom management are to create an environment that is good for learning and to develop students' self management skills. More especially classroom management tries to create positive teacher-student and peer relationships. It also tries to manage student groups to sustain on-task behaviour (no distracters). Again, it uses counselling and other psychological methods to aid students who continuously present psychological problems.
 - Rewarding: Teachers can improve students behaviour by systematically rewarding students who follow classroom rules with praises, good remarks, tokens etc.

Despite the fact that rewards have been used in changing behaviour, their use in education has been criticized by proponents of self-determination theory who claim that praise and other rewards undermine intrinsic motivation. They believe rewards decrease intrinsic motivation in specific situations, such as when the student already has a high level of self motivation to perform a desirable behaviour. The proponents believe the students will be dependent on rewards.

Psychological Ways of Gathering Data about Pupils

Teachers help in diverse ways to take decisions for the welfare of pupils. This becomes possible if they have useful information about the pupils.

These are some of the means of collecting data on pupils.

- observation techniques
- interview
- psychological tests
- case study
- anecdotes
- autobiography
- sociometry

Observation Technique

According to Numale (2007), one of the ways of understanding an individual is through constant observation of his behaviours in different situations. Dear learner, you know that there are areas of an individual's behaviour that psychological tests may not be able to give accurate information about. For instance, the changing mood of an individual in the class can be known by careful observation of that person's behaviour in and out of the classroom. Stephenson (1990) suggests that systematic observation takes one of three basic forms and each may be classified by the level of training.

First level: Casual Observation

This is the type of observation which is unstructured and unplanned which is usually carried out by nearly everyone. The observer does not need any special training for this type of observation. Also the observer does not need any instrument to help him gather information about what he/she is observing or the subject.

Second Level: Guided Observation

This is a planned and directed observation for a purpose. Observation at this level is usually facilitated by simple instrument such as checklists and rating scales. Some period of training is required because there should be some written items or questions to direct the person doing the observation. In this case the observer looks for some particular behaviour about the subject.

Third Level: Clinical Observation

This type of observation is often prolonged and it is frequently done under controlled conditions. Clinical observation requires sophisticated techniques and instrument and some level of training. It is mostly carried out in the medical settings

The Interview Method

The teacher can use interview to get information about the pupil for decision making purposes. Interview is a face-to-face relationship between the researcher and the subject during which the researcher asks questions which the subject answers. There are two types of interview – the structured and the unstructured.

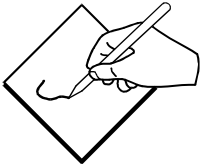
The Structured Interview

In this type of interview a list of questions is prepared by the interviewer. These questions are meant to elicit responses from the interviewee which will help the researcher or interviewer to take a decision on him/her. Responses given by the interviewee could be written down. This type of interview has a problem because the interviewer is likely to forget some vital information. Therefore it is always good to record the conversation on a tape, with the consent of the interviewee. The tape could be played back over and over again for any information that might be important for decision-making.

The unstructured interview

As the name of this type of interview suggests, there are already made test items for the interviewee to respond to, but the questions do not follow one another systematically. That is, they are written without any order. The most important thing is that each question is supposed to gather information.

For the two types of interview, it is always necessary for the interviewer to inform the interviewee in advance, taking into consideration date, time and venue for the meeting.



Activity 1.2

Explain how you will use each of the following in your classroom

a) Sociogram

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b) Scholastic

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Psychological Tests

According to Numale (2007), psychological tests are constructed to assess representative sample of an individual's behaviour from which the totality of that individual might be inferred. They are tests that are frequently used to solve problems arising in education or counselling such as classifying pupils according to their abilities. The main aim of psychological testing is to help a client or student solve a particular intellectual problem.

Psychological test is also called standardized test. The following are some types of psychological or standardized test.

Aptitude Test

Aptitude refers to the combination of physical and mental characteristics and motivational factors such as interest and capabilities necessary for acquiring proficiency. Hence aptitude test verifies verbal, numerical, mechanical, musical, artistic and graphic readiness for a task or skills.

Achievement Test

It is a test that measures the extent to which a person has achieved something, acquired certain information or mastered some skills usually as a result of planned instruction or training. Teacher-made test like what you prepare and administer to your pupils at the end of each term is an example of achievement test.

Intelligence Test

Intelligence tests are designed to assess an individual's level of intellectual functioning and to screen according to high or low intelligent quotient (IQ). Since intelligence tests measure mental ability, most of the items include memory questions (numbers, stories, symbols, forms etc.) space perception, abstract ideas, drawing perception, completing of item and reorganization tasks.

Personality Test

It is intended to measure individual's psychological make-up. It is an instrument designed to obtain information on the affective characteristics of individuals, their emotional, motivational and attitudinal characteristics and their personality traits. A trait is a particular quality in your personality such as sociability, introversion, quick temperament etc. Generally, personality test normally measures non-intellectual aspects of the individual like emotional adjustment, social/interpersonal relations, attitudinal characteristics, aspects of cooperativeness and motivational characteristics.

Scholastic Aptitude Test

It is designed to discover whether a child is gifted or not in certain skills. The gifted or talented is a diverse group and their range of attainment is varied (Numale 2007). Being gifted or talented covers more than the ability to succeed in tests and examinations. For example, gifted or talented learners may demonstrate leadership qualities, high level skills or a capacity for active thought. It is important to recognize that not all gifted learners are obvious achievers many actually underachieve. Their potential is masked by factors such as frustration, low self-esteem, or lack of challenging tasks.

Others also underachieve because they have some learning disabilities that obscure or eclipse their gifts. To enable these children to fulfill their potentials, it is vital to give every one the opportunity to excel. Scholastic aptitude test is helpful in the following ways:

- To help estimate the future performance and success of a person in school work
- To help estimate a person's future performance and success in various occupations
- To estimate a person's suitability for further education.

Activity 1.3

Give two reasons why a brilliant pupil may find it difficult to achieve his goals.

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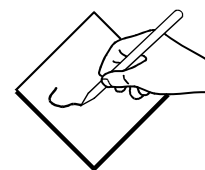
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**Case Study**

Case study involves a detailed study of an individual's total personality with intent of having a thorough understanding of himself/herself. It could also be used to summarize an intensive investigation about a group of people.

The data compiled on the behaviour of the student under study may be problems of maladjustment and deviant cases such as emotional disturbances, anti-social behaviours, depression, quick temperament and the like.

Case studies can be conducted through the use of interviews, prolonged observation and contacts with family members of the subject. Also those who have stayed with the person in the same area for a long time could be contacted for reliable information. The data gathered would be analyzed and interpreted by the teacher so as to know the causes of the problem and the necessary intervention adopted for treatment.

Sociometry

Dear learner, there is the need for teachers to know the social relationship pattern of children in their classrooms. Teachers must know how children choose their partners for various activities inside and outside the classroom. This knowledge will enable teachers to put pupils appropriately in their preferred groups for activities so as to enhance effectiveness. This effectiveness could be obtained by drawing the choice patterns of children by the use of a sociometric technique called sociogram.

Anecdotal Records

Anecdotal record consists of an objective description of a pupil's behaviour in a particular environmental setting. The anecdotal record describes a sample of behaviour in a given situational context. The behaviour described may be positive or negative, but it must be the learner's behaviour and not the teacher's or observer's behaviour that must be described. The anecdotes are interpreted and recommended for future decision making.

Autobiography

An autobiography is the life history or the story of an individual which has been written by himself/herself. A person's own written report of his or her life provides insight into the "inner person". Thus autobiography is the person's written experiences and knowledge about himself/herself.

Types of Autobiographies

There are two types of autobiographies.

- Unstructured autobiography
- Structured autobiography

Unstructured autobiography

This is where the individual writes freely about himself. He goes into areas of his personal life that are hidden to others and also relates the events which have had impact on his life.

Structured autobiography

In the case of structured autobiography, the individual responds to specific questions which form an outline for the autobiography. Would you like to try your hands on one? That can be very interesting.

Activity 1.4

State two reasons why the classroom teacher must study the social relationship of his/her students/pupils.

- (i)
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- (ii)
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Uses of data gathered by the school

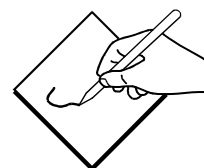
Dear learners, we have already identified techniques or ways of gathering data about pupils. Let us see how these data are used to help the pupils as individuals. According to Numale (2007) data gathered by the school can be used in the following ways.

- Teachers use tests scores that are accurate and reliable about each student's abilities, aptitudes, interest and personal characteristics in order to assist the pupil in gaining self-understanding. These will enable teachers to provide very useful assistance to the students.
 - Tests are used to predict future performances such as senior high school as well as college success. Tests provide an improved basis for prediction regarding the likelihood of success in those activities in which subsequent performances can be measured.
 - Administrators use test to help make decisions in overall educational planning. They are used in making decisions of curriculum, identification of pupils' needs, classification of educational objectives and the like.
 - Administrators also use tests to determine the strengths and weaknesses of instructional programmes. Test data help in identifying strengths and inadequacies in curriculum content and organization.
- Data about a pupil will enable the school counsellor to have a fore knowledge about the person he is to help to achieve his goal or handle counselling sessions.
- Information about a pupil will also enable the school to assist him in his socio-personal relationship. Such assistance may enable the pupil to socialize well in a group and by so doing may have the chance to develop his potentials some of which may be leadership qualities.

Activity 1.5

Indicate two uses of test by the teacher

- (i)
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- (ii)
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Limitations of Uses of Data Gathered About Pupils

The following reasons may not allow teachers and other people to rely fully on data gathered about pupils/students.

- Test scores may not be sufficient to determine the future performance of the pupil in his academic endeavours. This is because personality is subject to change depending upon the environment a person finds himself. Environment can change the interest, values, goals and the general aspirations of the individual from time to time.
- Data based on observation might not be the true picture of the pupil. The observers' own perception about the subject may cloud or eclipse the behaviour being observed. If that happens nothing good can come from that data.
- The circumstances under which the data was gathered may influence the nature of data. The subject may not be in his real self. Using such data for decision making may be misleading.
- Time may affect the use of particular data. In this rapid technological advancement, circumstances may render the data gathered for decision-making useless.



Summary

Section one introduced to you the concept of psychology and what role educational psychology plays in teaching and learning. The teacher plays a major role in the decision-making process of the school child. For this reason he/she has to be actively involved in data collection procedures about the school child. Also I discussed some of the limitations of the uses of data gathered about the school pupils. You agree with me that data collection is a human activity and as such may have some limitations

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INFORMATION PAGE

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 introduction

Dear learner in this section we shall discuss how the human organism develops taking into consideration life before birth, the nervous system, motor development, sensory development, bonding and speech development.

 objectives

After reading this section you should be able to:

- explain the zygotic stage of human development
- explain the embryonic stage of human development
- describe the physical development in childhood
- explain the functions of the uterus
- differentiate between the zygotic stage and the embryonic stage

Life before Birth

Life before birth is also called the prenatal stages of human development. Each of us begins life as a tiny water speck. That tiny speck called zygote contains the genetic background that will shape and direct our development for the rest of our lives.

The zygote is formed at the moment of conception, when the sperm cell of the male fertilizes the egg cell of the female. Half of the genetic background contained in the zygote comes from the father and half from the mother so that the baby will be like both parents, but not exactly like either one. Thus the zygote contains the hereditary component that will be constantly moulded and modified through environmental interactions.

The zygote floats freely inside the uterus. After about two weeks it attaches itself to the wall of the uterus and becomes a parasite, receiving all its oxygen and nourishment from the mother's body. By the time the zygote attaches itself to the wall of the uterus, it has already begun to differentiate into three parts: the outer layer or ectoderm, which will form the brain; the middle layer, or mesoderm, which will form the heart; and the inner layer, or endoderm which will form the liver. If the zygote remains in the uterus and the uterus' environment remains healthy, then growth and development continue, and some nine months later the baby is born.

The embryonic stage begins two weeks after conception, at the time the zygote attaches itself to the uterus. At this point the developing organism is called 'embryo'. The embryonic stage lasts until about eight weeks after conception and during this stage the organism increases its weight by 2 million percent. Also during this period the heart begins beating, sex organs are formed, hands and feet are formed and can be flexed, and all the internal organs are formed. By the end of the embryonic period, the organism is clearly identifiable as human

From eight weeks after conception until birth the organism is called fetus. Though the growth rate of the fetus is not as spectacular as the zygote's or

embryo's, it is still extremely rapid by postnatal standard. The fetus is definitely a behaving organism and its behaviour can be studied.

According to Brazelton (1981) medical techniques have established a fetal age of just over twenty weeks as the dividing line between whether or not the fetus can survive if prematurely born.

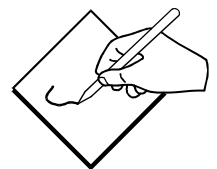
It is known that the fetus can react to stimuli as early as eight weeks after conception. At this time it is sensitive to stimulation of the nose, lips and chin. The area of sensitivity gradually increases, and by the fourth week, the whole body is sensitive apart from the top and back of the head. The top of the head does not respond to stimulation until after birth.

Along with the ability to react to stimuli the fetus can also act spontaneously. Certainly after the fourth month the mother is aware of fetal activity. This activity is quite diffuse that is, movements are slow and involve several parts of the body at once.

Activity 2.1

State and explain one function of the uterus

- (i)



The Nervous system

In one sense the nervous system is complete at birth – that is, the number of typical nerve cells never increases after birth – but the size of these cells does increase. Also, although the neonate comes equipped with a fully structured nervous system, it is many years before this system can function efficiently.

Each nerve cell or neuron has two basic parts: these are fibers and cell bodies. Think of the neuron as a fibre with branches at both ends and a bulge (cell body) in the middle. The function of the neuron is to transmit messages (neural impulses) to and from all parts of the body. The branches, or fibres, pick up the messages and send them on their way. The receiving end of a neuron is the dendrite and the transmitting end is the axon. In order not to short-circuit the electricity charged neural impulses, most of these fibres are insulated with a white sheath called myelin. The gray-coloured cell body does not have this covering. Therefore the myelin covered neural pathways are called white matter and the uncovered cell bodies called gray matter. The myelinization of the nervous system is not complete at birth, so that a great deal of short-circuiting among the baby's neural impulses does indeed occur. This, in part accounts for the mass activity that is characteristic of a baby's physical reactions. Touching a baby's foot doesn't result in just a fast response but is usually followed by gross movements of both feet, both arms and even the trunk. Although the nervous system is

structurally complete at birth, it is nowhere near functionally mature. The cerebral cortex which is crucial for learning and complex behaviour, doesn't become functionally mature until about age two, and some maturation continues until about twelve to fifteen years.

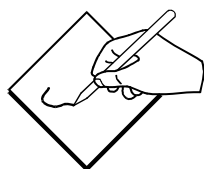
Motor Development

One of the most dramatic features of infancy is the development of motor skills. According to Smolak (1986) there is a definite pattern for motor development: infants hold up their heads before they sit alone, sit before they crawl and crawl before they walk. This pattern of development is almost exactly the same for every human baby, and each child passes through each of these physical stages at almost the same age.

Studies have also shown that motor development occurs in three basic ways. They are explained below:

- **Cephalocaudal progression.** This means that motor ability develops from the head on down to the toes. The neonate's head is closer to the eventual adult size than is the rest of the body. Also, the infant has more motor control of the body. The progression of control follows this pattern. First the head; then the shoulders, arms, and abdomen; and finally the legs and feet.
- **Proximodistal progression** – meaning that growth and motor ability develop from the central axis of the body outward. Trunk and shoulder movements occur earlier than separate arm movements. Control of the hand and fingers comes last.
- **Mass-to specific-action progression** – indicating that the baby's first actions are global and undifferentiated. Slowly, the infant's ability to make specific responses emerges. Refined activities of the fingers and thumb usually do not occur until the baby is about a year old.

Motor development is thus heavily influenced by biological maturation, though practice is certainly necessary for full development of the biological potential. For such activity as walking, early practice is a key ingredient in the actions maintenance and further development.



Activity 2.2

Distinguish between cephalocaudal progression and proximodistal progression in your own words.

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Sensory Development

Many studies have been done to determine what infants are able to receive through their sensory equipment. Since infants obviously cannot give verbal answers to questions, researching this area is much like animal

research. If a researcher is trying to find out whether a rat can sense the differences between the colours red and green, the rat can be presented with a red light and food in the other. After a number of trials, if the rat goes consistently to the red light even when it is randomly switched to the goal box that has no food in it, the researcher would know that the rat can discriminate between red and green. Studies have shown that rats in fact, cannot make this discrimination between red and green colours when the amount of illumination is held constant (Brazelton, 1981). We can use this as a premise to explain that newborn babies have been shown capable of discriminating between sweet and sour tastes, taste being the most highly developed of all the senses at birth. Responses to different smells have been observed with a few hours after birth.

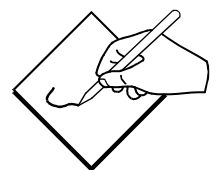
Some babies respond to sound almost immediately after birth, whereas others may take a few days to gain this sense. This difference is a result of the time it may take for the amniotic fluid to drain out of the newborn hearing mechanism. Once the fluid is drained, neonates not only show the ability to respond to sound, but can even discriminate among certain sounds. Even neonates as young as three days old, for example, show a marked preference for the mother's voice over the voices of others.

Vision develops more slowly than many of the other senses. Responses to light and darkness (the pupillary reflex) is functional within two days after birth, and by ten days infants can follow moving objects with their eyes. Since the neonate can still focus down to about a distance of eight to ten inches, the new born can certainly see the mother's face. By six months of age infants can discriminate between colors, between such shapes as circles and triangles and between the faces of parents and strangers. In fact, in one study it was found that infants as young as one month old could distinguish between familiar and unfamiliar faces (Maurer & Salapatek, 1995).

One classic study has demonstrated that six month-old infants have the ability to perceive depth and thus to avoid situations in which they might fall. In this study the babies were placed on a plate of glass that extended from a table top across a three-foot drop in space. When the babies reached what they perceived as the edge of the table, they refused to crawl across the rest of the glass. This perceived drop off is called the visual cliff, and it has been demonstrated not only with infants but also with lower organisms such as cats and rats. The ability to perceive the visual cliff and act on that perception has obvious survival value for the species.

Explain briefly in your own words why some babies respond to sounds almost immediately after birth, whereas others may take few days to gain this sense.

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Bonding

Some researchers believe that a process, similar to imprinting among birds, occurs between mother and child. This is called maternal-infant bonding, and it is said to produce a strong emotional attachment between the mother and child. The bonding process requires direct physical contact between mother and child, and apparently, must take place within the baby's first three days of life. According to Brazelton (1981), part of the reason for this is that during those, first three days the neonate is more alert and more able to respond than will be the case for the several days which follow. Thus the existence of a sensitive period – a specific time frame in which bonding may appear – has been hypothesized. Some researchers have cited the failure to form this psychological bond as a possible reason for later episodes of child neglect and even child abuse.

Speech Development

At birth, speech is restricted to general undifferentiated crying, yet by the second month the baby can communicate both discomfort and contentment through the use of loud crying or gentle cooing. Of all the developmental factors covered so far, speech is obviously the most one influenced by learning. Yet even speech is built on a biological foundation. Studies of the various sounds made by infants throughout the world have found that certain sounds occur at about the same time and in about the same order in all infants.. By listening to the sounds of a baby lying contentedly nearby, one can hear the basic sounds of all languages throughout the world. Isn't it wonderful?

Learning theorists, such as Brazelton (1981), believe that babies keep some of these sounds – those reinforced by their parents – and slowly discard those that are not encouraged. By the ninth or tenth month they are able to imitate some of the sounds made by others around them.

Other theorists, such as Chomsky (1980), believes there is a heavy genetic component in language acquisition. Rather than learning language solely on the basis of reinforcement and imitation, Chomsky argues that children may acquire language as the result of an inborn language acquisition device (LAD), which directs the infant's ability to learn. Smolak (1986) agrees with Chomsky, in a way, when he indicated that language acquisition is genetically based, believing that the neonate enters the world with a built-in language "bias" that undoubtedly serves an evolutionary purpose. Also it is known that among adults language is processed in an area of the brain's left hemisphere and that this left hemisphere processing area is significantly larger than the comparable area of the right hemisphere. This cortical size difference is found not only among adults, but also among neonates and even among fetuses. These facts lend further credence to the hypothesis that there is probably a genetic basis for language receptivity and acquisition.

About one year of age, babies can associate the sounds they make with specific objects and thus they begin to utter their first words such as “dada”, “mama”, or “bye-bye”. The young mother is often depressed over the fact that she’s been through an uncomfortable pregnancy and has spent sleepless nights feeding, changing, and comforting the baby, only to hear her baby’s first word ‘dada’.

After the first word the baby’s vocabulary increases slowly for the next few months. This slowness may be due to the total attention the infant is devoting in learning the intricacies of walking. Once the child has mastered walking, usually at about eighteen months, language development speeds up. There is, of course, a definite lag between speech production and speech recognition. It has been estimated that by eighteen months of age babies can recognize up to six times as many words as they can produce.

Between eighteen and twenty-four months of age there is typically a fairly dramatic vocabulary spurt. The baby at twelve months is able to produce approximately 30 to 50 words, and by eighteen months is typically producing at least 400 words.

These figures are of course only averages and there are great individual differences from one child to the next. For example, children with high IQs, begin talking, on the average, as much as four months earlier than the average child. Also girls begin talking sooner than boys, use more words in each sentence and have larger vocabularies. Moreover as they get older, girls have fewer speech problems than boys. Boys are more prone to stuttering, and hesitation sounds such as “uh” and “er”. Later in life there are still some dramatic speech differences between the sexes. .

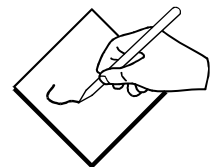
Activity 2.4

Identify one reason why girls develop their language vocabulary faster than boys.

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Summary

This section has mainly discussed the biological aspects of the human organism. Under life before birth, we realized that the zygote is formed at the moment of conception. When we discussed the nervous system we realized that each nerve cell has two basic parts – the fibres and cell bodies. It was also noted that motor development occurs according to at least three general rules-cephalocaudal progression, proximodistal progression and mass-to-specific-action progression. Bonding which produces a strong emotional attachment between the mother and the child was also considered in this section. Lastly speech development as a means of communication between the child and his parents, siblings and other people was also treated.



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Introduction

This third section of Unit one covers human growth and development. I will discuss the meaning of growth, development, maturation and the characteristics of growth and development. The section also aims at exposing you, as teachers, to the principles of development and how relevant they are, to you in your lesson plan and delivery. External influences on prenatal development will also be discussed

Objectives

When you finish reading this section you should be able to:

- explain the concept growth.
- explain the concept development.
- differentiate between growth and development.
- discuss three implications of the principles of development to the classroom teacher.
- differentiate between child growth and development.
- indicate two environmental factors that affect prenatal development.

The Meaning of Growth

Growth refers to quantitative biological changes that increase in size, volume, weight, height and in general terms structure. The child does not only become large physically such as gaining increase in height and weight but the size and structure of the internal organs as well as the brain also increase in the course of its development. As a result of the growth of the brain, the child has a greater capacity for learning, for remembering and for reasoning.

Growth is accomplished in several ways such as the following:

- When new living matter, protoplasm is created from available foodstuffs.
- Water intake. A human embryo of the early weeks is nearly 98% water, while an adult is 79% fluid.
- Intercellular disposition; cells manufacture such non-living substances as fibres and the ground substance of cartilage and bones. Through these activities a newborn baby is several thousand million times heavier than the zygote from which it came.

The particular programme of starting times and growth rates both externally and internally in human embryo constitutes its characteristic growth pattern. Abnormal growth occurs occasionally and growth may be excessive or deficient. General gigantism usually starts before birth, and the oversized baby continues to grow at an accelerated rate. However, in some instances the existing hereditary predisposition for gigantism may not be aroused into action until some time during childhood. In a reverse manner, general dwarfism may exist before birth, with the individual continuing to grow only a small amount after birth and with growth stopping at the usual time. In another departure from the usual growth pattern, the individual may be

average in size at birth and grows normally for a while, with growth coming to a premature arrest.

Activity 3.1

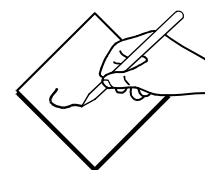
In your own words indicate two factors that may determine the growth of a child.

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The Meaning of Development

Human development refers to biological and psychological changes of human being throughout ones life span. It consists of the development of the neonate through infancy. Development does not only involve an increase in size but also a progressive addition of visible complexity as cell differentiation proceeds in the embrayo.

Development is progressive and occurs in an orderly predictable sequence or pattern as a result of maturation or experience. The process of development is usually unnoticed except its result or product. These may include competencies, abilities, speaking, walking etc. Infants do not develop in a haphazard manner. Their development follows consistent patterns and is governed by principles that are well understood. For instance, it is a fact that a child crawls before he walks. Development is therefore defined as the orderly and sequential changes that occur with the passage of time as an organism moves from conception to death.

The Meaning of Maturation

Maturation is an internal factor that occurs when new characteristics of the individual emerge through the normal growth process. Maturation follows a universal pattern. As it has been stated earlier, children the world over crawl before they walk. It must also be mentioned here that children have milk teeth before permanent teeth and also stand before they run. These show that maturation is the unfolding of natural potentials in an individual. It can be described as the organisms readiness at a specific point in its development to perform a task.

Even though the concepts growth, development and maturation look independent of each other, the reality is that they are interrelated. For instance, as an individual grows he/she develops and also matures. The three concepts complement each other in a person's developmental process

Effects of Heredity and environment on prenatal development

Dear learner, you are already aware that every parent expects to have a normal child when conception takes place. However, during the period of life before birth (prenatal stage) some factors can affect the growth and development of the child. Let us take the factors one by one and discuss them.

Drugs and alcohol: Some pregnant women are used to hard drugs and/or alcohol. They take in these substances in order to get pleasant and exciting feelings. There are some pregnant women who may also find it difficult to sleep because of stress. In this situation they are given sedatives to enable them to sleep. The use of drugs and alcohol by pregnant women has adverse effect on the development of the unborn child. It is no gain saying that the zygote or the embryo gets its food from its mother. Therefore excessive intake of drugs or alcohol by the pregnant woman will affect the unborn child. For instance the brain of the embryo can be damaged and therefore the child may have mental problems when he/she is born.

Poor Nutrition: Through the placenta, the embryo gets its food from its mother. If the pregnant woman takes in good food at the required time the fetus grows and develops well. On the other hand if the diet of the expectant mother is poor the child cannot develop well. She may have a baby with low birth weight, anaemia, deliver prematurely, miscarry or have still births.

Maternal Disease: Fetal infection can occur from maternal disease(s) since the foetus receives its nourishment from the mother through the placenta and umbilical cord. The most serious of maternal diseases is rubella or German measles. The extent to which the child is affected depends on the month of pregnancy. According to Amissah and Sam-Tagoe (2000) if it is during the critical period, that is the first five months, it can lead to visual impairment, deafness, or in extreme cases, mental retardation. Other maternal diseases include small pox, mumps, syphilis and gonorrhea.

Accidents: The time of pregnancy and the type of accident can have adverse effect on the unborn child. There can be motor accident at the work place or accident in the home (domestic accident). The severity of the shock will determine the extent of problem the child will suffer. Accident during the early part of pregnancy tend to have the greatest effect. The unborn child at this stage is too fragile so any external shock from the mother will have a serious effect on it.

Maternal stress: It has long been suspected that a mother's emotional state can affect fetal development. A recent study of pregnant women, comparing those who were severely stressed with those who were not, provides support for the adverse effects of maternal stress on fetal development. Women who were severely stressed during pregnancy because of divorce, the death of a close family member or a physical attack,

for instance, gave birth to infants with lower birth weights. The infants also had smaller heads (Darley, Glucksberg & Kinchla, 1984).

Irradiation: Large doses of irradiation as those used in x'ray for pregnant women can damage the foetus or induce abortion. The rays from the x'ray machine may be too powerful for the foetus to bear.

Age of mother: It is generally known that the best child bearing years are 20 through 35. Teenage mothers often go through surgical operation in order to have their babies. The reason is that their hips are not well developed for normal labour to occur. They sometimes lose their babies. Women close to their menopause also frequently have endocrine disorders which slow down the development of the foetus.

Activity 3.2

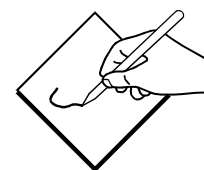
Indicate two environmental factors that can affect prenatal development.

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Principles of Development

There is a set of principles that characterizes the pattern and process of growth and development. These principles or characteristics describe typical development as a predictable and orderly process, that is, we can predict how most children will develop and that they will develop at the same rate and at about the same time as other children. Although there are individual differences in children's personalities, activity levels, and timing of developmental milestones, such as ages and stages, the principles and characteristics of development are universal patterns.

Development proceed from the head downward: This is called cephalocaudal principle. This principle prescribes the direction of growth and development. According to this principle, the child gains control of the head first, then arms and then legs. Infants develop control of the head and face movements within the first two months after birth. In the next few months they are able to lift themselves up by using their arms. By 6 to 12 months of age, infants start to gain control of the body and may be able to crawl, stand or walk. Coordination of arms always precedes coordination of legs.

Development proceeds from the centre of the body outward: This is the principle of proximodistal development which also describes the direction of development. This means that the spinal cord develops before outer parts of the body. The child's arms develop before the hands and fingers. The feet develop before the toes. Finger and toe muscles (used in fine motor dexterity) are the last to develop in physical development.

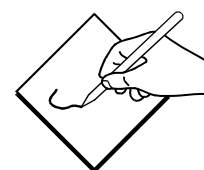
Development depends on maturation and learning: cannot use spoken language because the infant's brain has not matured enough to allow the child to talk. By two years old the brain has developed further and with the help from others, the child will have the capacity to say and understand some words. Also, a child cannot write or draw until he has developed the motor control to hold a pencil or crayon. Maturational patterns are innate, that is genetically programmed. The child's environment and the learning that occurs as a result of the child's experiences largely determine whether the child will reach optimal development. A stimulating environment and varied experiences allow a child to develop his or her potential.

Development proceeds from simple to complex: Children use their cognitive and language skills to reason and solve problems. For example, recognising relationships between and among things or classification, is an important cognitive ability. The cognitive development of how an apple and an orange are alike begins with the most simplistic or concrete thought of describing the two. Seeing no relationship, a preschool child will describe the objects according to some properties of the objects such as colour. Such a response would be "An apple is green". The first level of thinking about how objects are alike is to give a description or functional relationship between the two objects. "An apple and orange are alike because you can eat them" are typical responses of three, four and five year olds. As children develop their cognitive skills, they are able to understand a higher and more complex relationship between objects and things that is, that an apple and orange exist in a class called fruit. The child, cognitively, is then capable of classification.

Growth is a continuous process: As a child develops he or she adds to the skills already acquired and the new skills become the basis for further achievement and mastery of other skills. One stage of development lays the foundation for the next stage of development. For example in motor development, there is a predictable sequence of development that occur before walking. The infant lifts and turns the head before he or she can turn over. Infants can move their limbs (arms and legs) before grasping an object. Mastery of climbing stairs involves increasing skills from holding on to walking alone. By the age of four, most children can walk up and down stairs with alternating feet. As in maturation, in order for children to write or draw, they must have developed the manual (hand) control to hold a pencil and crayon.

Development proceeds from general to specific: In motor development the infant will be able to grasp an object with the whole hand before using only his thumb and forefinger. The infants' first motor movements are very generalized, undirected, and reflexive, waving arms or skidding before being able to reach or creep toward an object. Development occurs from large muscle movements to more refined (smaller) muscle movements.

There are individual rates of growth and development: Each child is different and the rate at which individual children grow is different. Although the patterns and sequences of development are usually the same for all children, the rate at which individual children reach developmental stages will be different. Understanding this fact of individual differences in rates of developmental task is very important. This dismisses the notion of the “average child”. Some children will walk at ten months while others walk at eighteen months of age. Some children are more active while others are intelligent in adulthood. There is no validity to comparing one child’s progress with or against another child. Rates of development also are not uniform within an individual child. For example a child’s intellectual development may progress faster than his emotional, physical or social development.



Activity 3.3

Identify two pupils in your class who are of the same age. Give them the same task at the same time. Write what you observe about these two individuals and give reasons.

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Relevance of the principles of development to the classroom teacher

- A rich environment is important to the child’s total growth and development. Teachers and parents should try as much as possible to create healthy environments for the smooth development of the child. In the school teachers should try and introduce different activities in their lessons for pupils to try their hands and ideas on. By so doing they gain new ideas and also learn new skills for their personal development. At home parents have the responsibility to engage their children in activities and supervise them. Learning new skills is not only limited in the school. Parents can introduce new games in the house for their children to play, instead of allowing them to play about.
- Teachers should present lessons that suit the age level of children. What children are supposed to learn at a particular stage is what must be presented. This becomes possible if the teacher knows the entering behaviour of the pupils he is teaching, he will be able to plan his instructional materials for teaching and learning purposes. Children are supposed to have very good foundations to enable them build on.
- Teaching and learning should be fashioned in such a way that they move from general to specific. In other words general ideas about things should be taught before the specific. For instance the concept fruit should be taught before helping pupils to name various examples of fruits.

- Teachers should help pupils to lay good learning foundations in the school. The teaching learning tasks at each level must be completed before moving to the next stage
- The teacher should see each child as unique in the classroom. Each child should be assisted to learn at his own pace.



Summary

Now let us go briefly over what we have so far discussed. We started by discussing definitions of growth and ways it is accomplished. We also looked at development and maturation in children. Next we saw that the unborn child could be negatively affected if its mother indulges in the consumption of drugs and alcohol and also when she does not take good care of her health.

Since the teacher constantly and positively interacts with children he influences their lives. He therefore has to adopt desirable strategies in the teaching and learning process to benefit his/her pupils. Knowledge of the principles of development and their relevance to the classroom teacher should guide teachers to ensure good instructional process and learning in the classroom.

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INFORMATION PAGE

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introduction

Welcome to section four of the first unit. I hope you found section three interesting and relevant to your work. The discussion here focuses on the physical and motor development in infancy and childhood; cognitive abilities in late childhood; emotional development in childhood; stages of emotional development and implications of childhood emotional development.

objectives

After going through section four you should be able to:

- differentiate between early childhood and late childhood.
- list two features of infancy.
- list two features of late childhood.
- state two implications of emotional development the child to the teacher.
- indicate two differences between boys and girls during late childhood

Infancy (0 – 2 years)

At birth the average infant weight is 3.4kgs and measures 50cm in length. The new born's head is often huge in proportion to the rest of the body. The bones are soft and flexible because they are composed of cartilage. Usually boys are taller and heavier than girls. One thing about this stage is that growth during the first two years of life is very rapid, more rapid than at any other time in life. It may interest you to know that by the fourth month the baby may have doubled in weight and height. Growth at this stage, as well as prior to birth, reflected two growth trends – the cephalocaudal growth trend, in which growth begins in the region of the head and proceeds downwards, and the proximodistal growth trend, in which growth progresses outward from the centre of the body to the extremities (these have been mentioned earlier). Bone growth occurs rapidly during both infancy and early childhood, with existing bones increasing in size and density, new bones emerging, and the overall alignment of bones changing. The bony plates forming the skull also grow. At birth, the skull bones are separated by gaps or fontanelles. The gaps allow the bones of the skull to overlap each other as the head squeezes through the birth canal.

At birth infants can see and hear but without as much accuracy as adults. The sense of smell is well developed at birth and the ability to distinguish odours is present. Infants show definite preference for sweet liquids, definite aversion to foul odours and less sensitivity to pain than older children do. All the senses of the infant develop rapidly and reach adult levels by the end of the infancy period. Motor skills such as sitting, crawling, walking and so on are accomplished at the end of infancy.

Some of the activities of the infant which appear at birth are visual fixation on light and spontaneous eye movements. Others are feeding responses such as tongue, cheek and lip movements, sucking of fingers, turning and lifting the head, hand and arm movement and kicking the legs and feet.

Early Childhood (2 – 6 Years)

Growth during early childhood proceeds at a slower rate as compared with that of the infancy period. During this period boys have more muscles and stronger bones than girls, but girls are fatter than boys.

Boys are a bit taller and heavier throughout this stage, and remain so until about the age of eleven. The average three-year old boy stands just over 94.91cm tall and weighs about 14.62kg. By the age of six he stands almost 116.1cm tall and weighs 20.69kg (Ginsberg & Oppen, 1988).

Head growth is slow but limb growth is rapid. The face of girls usually have finer features and less ragged than those of boys. The first permanent teeth develop at about six years and girls tend to get their second teeth earlier than boys. Children at this stage are very active with their limbs and can perform a lot of motor skills. Play and group activities become important activities to the child.

Activity 4.1

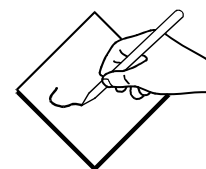
List two striking features of the infancy period and the early childhood period.

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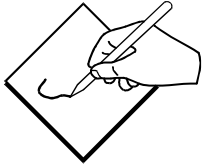
Late childhood (6 – 12 years)

Late childhood is a period of low and relatively uniform growth until changes of puberty begin at which time growth speeds up markedly. The late childhood is indeed a period of horizontal growth. The gradual changes in height, weight and appearance can lead us to conclude that little of interest is going on.

In motor development, boys are generally superior to girls in gross motor activities. Boys are, for instance, superior in running, jumping, climbing and throwing than girls.

At the late childhood period the most significant cognitive abilities include the following:

- Understanding of the principles of conservation, seriation, grouping and cause and effect.
- Capability of mental operations such as addition, subtraction, multiplication, division and categorization not just of numbers but also of people and actions.
- The ability to think and make one object or action stands for another. Children can represent objects in drawing and words and are quite fluent in language.



Activity 4.2

State two differences between early childhood and late childhood periods

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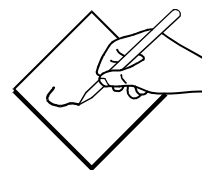
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Emotional development during childhood

Now let us continue the discussion with a look at emotional development during childhood. Children show a wide range of emotional reactions. Sometimes they are happy, at other times they are moody. These psychological states of the child are dependant on the child's behaviour as a result of the environmental demands or the behaviour of others. Thus emotions can be the expression of inner feeling aroused by external agents. Emotions can be classified into two. They are pleasant emotions and unpleasant emotions. Pleasant emotions bring about happiness, joy, love, pleasure, laughter and a sense of humour. They facilitate mental health and growth. Laughter is good for growth and development.

When a child feels threatened he/she becomes tense. His or her adrenal glands become more active and makes the heart beat faster. The rate of breathing quickens. These cause unpleasant emotions. Some unpleasant emotions are fear, anger, anxiety and guilt. A child who constantly experiences unpleasant emotions finds it difficult to concentrate on his school work or house chores.

- According to Surrah and Riezo (1978) emotions have the following functions
- Emotions can be viewed as forms of communication by which the infant and the child can communicate to others what they need, desire or how they are feeling. By smiling for instance, an infant communicates to others that an event is pleasurable, while by frowning, an infant communicates displeasure
- Emotions serve to determine social distance. By smiling, the infant is more likely to maintain close contact with the source of happiness. Sadness and crying may also cause parents or adults to attend to the child or infant. Anger may help keep the source of anger at a distance
- Emotions are a two-way process. Not only do children learn to regulate others by careful display of different emotions but, in turn, they learn to recognize or read the emotional messages of other people. Both processes and production as well as recognition of emotions are important ways that children learn to regulate their exchanges with others in their environment.

**Activity 4.3**

- a) Observe, select and interview one of your pupils who is always moody. Write two reasons why he/she is always moody.

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- b) Observe, select and interview a pupil in your class who is always happy. State two reasons for his/her happiness.

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Stages of Emotional Development

- **Attachment and dependency:**

During a child's first 18 months, emotional development can be characterized by the terms attachment and dependency. At this age children learn that a certain person, usually a mother, is the source of warmth, food, and comfort. Children become attached to and dependent on that person. If the object of attachment and dependency is removed, children suffer anxiety. If children receive adequate care and love during this period, they develop a sense of security in the world and are ready to move to the next stage of emotional development.

- **Autonomy and independence:**

Between 18 months and 3 years, children develop autonomy and independence. In this stage great changes occur. From the environment of only parents and siblings, children move to a big world and discover that not all of it is there to please, amuse, or comfort them. This period of adjustment strongly influences emotional development which is also called affective development. Overly protective parents may cause their children to become timid. For instance, a child constantly hearing "don't touch it", "be careful", "stop", "come back", may become reluctant to experiment and have difficulty facing new experiences as an adult. Parents of course, must teach children that they cannot do whatever they want. Actions have consequences. Fire thus burns. The ideal is for the children to learn that exploring is good, but that sometimes it is necessary to be careful. Through the interplay of the need to explore and the need for care, children develop autonomy and independence.

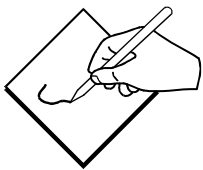
- **Identification and imitation:**

Identification and imitation play a part in emotional development, and at this stage, beginning about age 3, when young children unconsciously imitate selected models, identification and imitation

dominate. As children begin to notice physical differences between sexes, they start to identify their own sex roles. Children tend to identify and imitate parents of the same sex. Some theorists believe that moral values emerge at this stage.

- **Reward and Punishment**

Initially children's decisions to do what is right and avoid what is wrong stem from a desire to be rewarded or to avoid punishment. Later, they do what is right to please people they like. At a still later age, older children and young adults do what they feel society will approve. They behave so as to avoid a bad conscience. At this stage individuals have developed adult emotions.



Activity 4.4

- a) State two roles that mothers have to play to assist the child to complete the attachment and dependency stage successfully.

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- b) Apart from what has been stated in the autonomy and independence stages, write any two ways that may let the child develop reluctance to experiment and also have difficulty in facing new experiences as an adult.

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Educational implications of emotional development of the child

Infants interact with few people and things. At preschool age they have more interaction, they move out of home environment and into a new environment where they encounter many new people including the teacher. As a teacher it is good for you to know some of the following educational implications of children to enable you handle them well

- The school environment must be attractive in terms of the teacher showing love, care, comfort and respect toward the school children.
- The school should have a lot of activities to entertain school children. This will enable them to develop the sense of trust and belonging to each other. These activities would let the children explore the school environment and develop new skills from time to time which will enable them face the future as adults who are well prepared.
- The school teacher should know that school children see them as models and therefore imitate them unconsciously. It is therefore good for them to exhibit good behaviours for children to imitate.
- Teachers must let their pupils know that every action has a consequence. The result may be positive or negative. Children must be

cautioned so that their actions do not give them problems. The teacher must therefore serve as a guide.

- Teachers should note that verbal and material rewards yield more positive emotional outcomes in learners in the teaching learning process than corporal punishment.
- Teachers should observe children's emotions and help identify the basis of unhealthy emotions for remedy.

Summary

Section introduced you to infancy, as a period where the new born is very fragile and growth is very rapid. In fact more rapid, than at any other time in life. Next you saw that early childhood is a period where children are very active with their limbs and can perform a lot of motor skills. The most significant cognitive abilities of late childhood is the understanding of the principles of conservation, seriation, grouping, addition, subtraction, representing objects in drawing and words among others. Again in this section we looked at psychological states of children which were classified under pleasant emotions and unpleasant emotions. The stages of emotional development were also identified and lastly, educational implications of emotional development of children were also explained.



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 introduction

This is section 5 of unit 1. You are warmly welcome. This section will discuss issues about adolescence. It will concern itself with a definition of adolescence, special problems of girls and boys, adolescences sexuality, early and late maturation. Finally we shall discuss growth reports and educational problems of adolescence

 objectives

At the end of this section, you should be able to:

- explain adolescence in your own words.
help the adolescent girl to minimize her anxiety about her menarche or first menstruation
- explain some facts of sexual growth and maturation.
- provide adolescents timer sex education.

The Concept of Adolescence

Adolescence, the transitional period between childhood and adulthood, begins after secondary sexual characteristics (e.g. pubic hair) appear and continues until sexual maturity is complete. The beginning of adolescence is marked by biological changes while the end is marked largely by social changes. It is a period during which bones are still growing and there is a high risk of skeletal injuries. Rapid physical changes are accompanied by important psychological changes relating particularly to the way the adolescent perceives himself or herself. This can be a turbulent time.

According to Hofferth and Hayes (1987) some time ago, only the sons of rich families had the leisure to enjoy a decade (10 years) of adolescence. Most young people from poor homes finished their schooling at a tender age, went right to work, married at any age after 16, and were self supporting by 18.

However, in our time education has been extended and marriage postponed beyond the age of sexual maturity. A long period of adolescence has become a normal experience for the youth of all social classes.

To study the period of adolescence, psychologists used the following to gather information from and about adolescents

- Direct observation of individuals and groups.
- Genetic case studies of one person over a long period of time.
- Attitude scales, on which adolescents rate their reactions to listed items or phrases.
- Nondirective interviews in which the adolescent is free to discuss what he pleases.
- Standardized interviews, which use a fixed set of questions.
- Projective techniques that interpret the imaginative response of adolescents to test situations.
- Adolescent dairies, always a good source of information about activities and feelings and are usually written by the more intelligent adolescents

Special problems of adolescent girls

In girls, adolescence is signalled by the occurrence of the menarche, or first menstruation. This happens concurrently with breast development, usually by age thirteen. However, some girls reach menarche as early as age ten or as late as age sixteen because of individual differences in growth and development.

Menarche can be a traumatic event in the life of a young girl who is psychologically unprepared for this new experience. This is especially true for the early maturing (EM) girls. However, the girl who is secure in her sex identification and who has had adult support and guidance may regard her first menstruation with pride, as a sign that she is “grown up” and is no longer a child. The girl whose parents have prepared her for this new experience is less likely to be anxious about her menarche. For instance, parents/teachers could educate the adolescent girl that typically, physical development of the breast from bud to full size occurs from eleven to about fourteen years of age. The bud stage almost always precedes menarche and the first signs of pubic hair.

It is worth noting, as a teacher, that it is when growth has slowed down considerably that menarche takes place. At this point a number of other changes in fat and muscle composition are also occurring. After menarche most of the changes that follow are nonsexual. They include changes in the body shape and voice. The breast varies greatly in size and shape.

Also the clitoris enlarges probably as a result of the circulating adrenal androgens and becomes erective. Girls on the average enter puberty earlier than boys. They are generally taller and heavier than boys from age 11 to 15. Even though all normal females progress through these physical changes, each adolescent girl experiences them as novel and challenging (Hofferth and Hayes, 1987).

Special Problems of Adolescent Boys

Boys who begin puberty relatively late suffer psychological distress for a variety of reasons. Late maturing (LM) boys are apt to be ridiculed shorter and physically weaker than the early matures and thus less apt to become outstanding athletes. Because social reinforcement are fewer, the late maturing boy more often turns psychologically inward, becoming introverted.

The size of the penis is also of great concern to the adolescent boy. In the shower room the adolescent quickly glances from boy to boy, to see whether he “measures up”. The boy with the small penis is often openly ridiculed and his masculinity challenged. He worries that he will be an unsuccessful lover. The facts, however, are that according to Masters and Johnson (1966), the size of the penis is not highly correlated with a human physique or with great physical size. To them the largest penis they measured

(without erection or stretching) was five and a half inches and belonged to a man only 5 feet 7 inches tall. The shortest penis, just over two and a third inches was found on a man almost 6 feet tall.

Further, Masters and Johnson found little evidence for the widely held myth that the larger the penis, the greater the potential for giving sexual satisfaction. They say because the vagina distends when excited and then contracts around the penis in a snug grip, the size of the penis is of little importance.

According to Mauus (1988) in boys there is a progressive enlargement of the testicles with enlargement and blackening of the scrotum. This is followed about a year later by a spurt in height and growth of the penis. To them in the middle adolescence, that is 13-16 years the penis becomes erect not only in response to local stimulation as in childhood but also to sexually provocative sensations and thought. This is accompanied by the desire for sexual release. To Mauus there are greater differences between non-erect penis and erect one's. Secondly, the size of one's organ has little, if any, to do with the sexual satisfaction of either partner in a relationship. It is sometimes reassuring for boys to have such information.

Early and Late Maturation

Much research has gone into discovering what differences exist between early-maturing and late-maturing adolescents. One must be careful, in interpreting these studies, not to jump to the conclusion that other differences between EM and LM adolescents are due only to the adolescents' changing biology.

A boy of seventeen years whose voice hasn't changed yet, whose body proportions are still as they were when he was twelve, is all too often treated by those around him as though he were, in fact still only twelve years old. Similarly, the twelve-year-old boy who is speaking in a rich baritone, whose shoulders have broadened, and who shaves daily is more apt to be treated with dignity and respect.

Social psychologists tell us that the way people respond or react often depends on how others treat them. People who are treated like children very often respond in childlike ways, and those who are treated like adults respond with more maturity. If teachers and parents see early maturation as a negative characteristic, the adolescent can be adversely affected.

Social Development of Adolescence

To Dragunova (1999) sexual maturation makes adolescents appear more grown up in their own eyes. As a result they see themselves as no longer children in as much as they have acquired all the physical aspects of adulthood. The adolescent expects to be recognized as an adult. They want their rights to be expanded and their degree of freedom also extended. At

this age according to Dragunova, the adolescents want to be heard and as such must be directly involved in affairs that concern social and community development. This gives them the expression of admission into adulthood in so far as their involvement in social and community activities gives them the opportunity to imitate and follow norms set aside for adults.

These expectations of the adolescents are not always met and this according to Dragunova, usually brings about conflict between the adolescents and adults. The adults refuse to recognize adolescents as adults for these reasons:

- Adolescents socially depend on the adults for sustenance.
- Adolescents depend on adults for direction, guidance as well as supervision that affect their future life as adults.

To the adults, for adolescents to claim equality with them and yet depend on them for material support is not only unrealistic and illogical but also a demonstration of their immaturity.

Activity 5.1

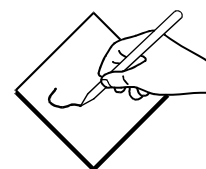
In what two ways can the teacher use to help the adolescent girl to understand her physical problems?

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Activity 5.2

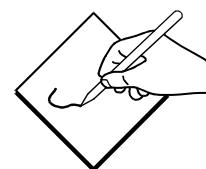
- Identify 3 material things that adolescents receive from their parents.
- Explain menarche
- Why does the adolescent girl become confused when she experiences her menarche?

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Growth Periods and Educational Problems of Adolescence

Teachers and parents alike have a responsibility to ensure the growth and development of children most especially in the areas of physical growth and social development. The adolescent period is characterized by rapid physical growth, glandular-sexual changes, social changes and cognitive shifts. Each individual student and each subgroup of students needs extra support during this critical period. To help the adolescent to handle his/her physical problems and social difficulties the teacher/parent may do some of the following:

- Help the late-maturing boy in developing confidence and assurance that before long he will reach maturity. Similarly the early-maturing girl

needs special counselling support to withstand some of the intense pressures she experiences from both adults and peers.

- Carefully listening to student concerns and some judicious reading between the lines will provide the teacher with more than a few cues as to possible reasons for a student's "unexplainable" upset, mood change, or rapid attention shift.
- Present the students with some facts of sexual growth and maturation. A few facts in this area may remove the mystery and correct some of the blatant untruths that students often pass on to one another

The AIDS scare has added new impetus to the drive for sex education in the schools. The logic is summarized in the argument that if youngsters are indeed going to be sexually active, then they had better know more about what they are doing. And the majority of today's teenagers are apparently sexually active. According to a survey by Hofferth and Hayes (1987), 60 percent of white males have had intercourse by age eighteen; 60 percent of white females by age eighteen; 60 percent of black males by age sixteen, and 60 percent of black females by age eighteen.



Summary

Adolescence marks the beginning of another growth spurt, a spurt that occurs earlier in girls than in boys. The early and the late-maturing girls and boys may have special problems in our culture. Adolescents need extra support and understanding during this critical period of development.

Sex education must be handled sensitively and with compassion. If teacher spends too much time attempting to detail the intricacies of sex education, adolescents may feel over stimulated. They may confuse education with encouragement and thus their psychological problems may increase rather than decrease.

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INFORMATION PAGE

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Introduction

This section which deals with Jean Piaget's stages of cognitive development is the last section of this unit. Congratulations for making it up to this point. It is a section in which you will know how Piaget has contributed immensely to our understanding of mental development as a process and broad outlines of the different cognitive systems children use at different periods in their lives.

Objectives

By the end of this section you should be able to:

- explain visual pursuit in your own words.
- explain object permanence.
- State two differences between the sensorimotor stage and intuitive stage.
- state two differences between concrete operations stage and formal operations stage.

Sensorimotor Stage (Birth to Two Years)

Cognitive activity during the sensorimotor stage is based primarily on immediate experience through the senses. The major intellectual activity of this stage is the interaction of the senses and the environment. Activity is practical. Without language to label experiences or to symbolize and hence remember events and ideas, children are dramatically bound to immediate experience. They see what is happening and feel it, but they have no way of categorizing their experience. Responses are almost completely determined by the situation. For example, a hungry child will figuratively scream for food. You will agree that it does no good to "tell" a six-month-old, "No just wait a minute; I'm warming your milk for you". The child has no way to represent the idea that in one or two minutes a nice warm bottle of milk will appear, and obviously the baby doesn't know what "wait a minute" is or, for that matter, what any of those other words mean.

Being tied to immediate experience during this stage also means that there is almost nothing between the child and the environment. The quality of experience is unusually significant. What and how the child learns will remain an immediate experience, as vivid as any first experience. It would be fair to say that learning in the sensorimotor stage is a continuous experience. It is something like going through each day as if it were the first time.

To give you some idea of how easily children at this age are bound by experience and can be victimized by it, we need only think of six-month-olds. This is the age at which children begin to follow an object with their eyes (visual pursuit). Their eyes swing back and forth, following the path of a shiny object, fifty to a hundred times. They can not take their eyes off the moving objects for some time. Because this is the "first" time they have seen an object move from side to side, they will follow its visual path almost indefinitely unless we wisely choose to change the environment.

The development of visual pursuit as a sensorimotor behaviour is critical to mental development. Visual pursuit has to be learned before object

permanence can be learned. Children gradually learn to discover the location of hidden objects at about eighteen months when the concept of object permanence is fully understood. They understand that when an object disappears from view, it still exists even though they can't see it. Whether it is a book hidden under a pillow, a person leaving the room, or a boy or girl hiding behind a door, children who have developed the concept of object permanence know the disappearance is only temporary and are thus free from endless visual pursuit. That is why a child may ask his dad "where is my doll?." The child knows that the doll is around but the only thing is that he cannot see it.

The adage "There is no substitute for experience" best summarizes the sensorimotor to age two that it accounts for the recent trend of providing babies with interesting baby toys like rattles to shake and teddy bears to hug. A rich and responsive sensory environment is the best means of developing the young child's intelligence.

One final point. Babies during this stage are primarily learning through their senses and are most strongly affected by their immediate environment. However, since object permanence develops in this stage, especially between year one and year two, we now know babies are capable of some representational thought much like that of the next stage. Young babies can store information even though their ability to do so may seem crude. We will make a mistake if we assume that because their talk gestures, and manipulations are so poor, there is no thought during the sensorimotor period.

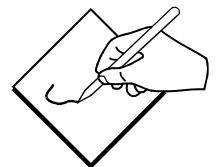
Activity 6.1

How will you explain object permanence?

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Intuitive or Preoperational Thought (Two to Seven Years)

During the preoperational stage, the quality of thinking is transformed. Children are no longer bound to their immediate sensory environment. As you already know, they started to develop some mental images in the preceding stage (object permanence, for example, and in this stage they expand that ability by leaps). Their capacity to store images such as words and grammatical structures of language, increase dramatically. Vocabulary development, including the ability to understand and use words, is especially noteworthy. The average two-year-old understands between 200 and 300 words, while the average five-year-old understands 2,000 words – a huge percentage increase.

During this stage, then, there is a major breakthrough in the use of language. Since this is the time when children are highly ready to learn language,

adults who talk a great deal to children, read to them, teach them songs and nursery rhymes, use language to communicate with them – have significant effect on the children's language development.

The predominant learning mode at this stage is intuitive. Preoperational children are not overly concerned with precision but delight in imitating sounds and trying out lots of different words. They are also unconcerned about the consequences of language.

It is obvious that, the richer the verbal environment at this time, the more likely it is that language will develop. This is not to suggest that, we should force-feed language teaching. The advantage of the intuitive mode is that children are capable of free associations, fantasies, and unique illogical meanings. At the intuitive stage the following are typical of children:

- They pretend that stuffed toys are real.
- They can have imagery friends and tell wild stories about their parentage.
- Have whole conversation with themselves as well as inanimate objects.

Children use these as ways of trying language out. The intuitive period is truly a golden opportunity for facilitating language development. But we should also make it clear that preoperational thought is a general mode during this time. This is why a child at this level would choose a tall, thin glass of water rather than a short, wide one. Intuitively, the tall glass seems to have more water in it because it's taller. "Let's not worry that it's thinner", the child might say, "because being taller is enough".

We can also say that the system of thinking that children typically employ during this period is creative and infinitive. A research by Ginsberg and Oppen (1988) has shown a great ability among preschoolers to distinguish between the real and the imaginary and to understand number sequence than was originally thought. This means children can learn to count better than "one, two, three, four" and can learn letters better than "I am O. K.". There is also evidence that children at this stage can show some signs of self-discipline. The increase in language ability essentially means that children can talk to themselves about resisting temptation. This does not mean, that a teacher should structure any substantial portion of a preschool day on learning letters and numbers. Remember just as was the case with the sensorimotor period, some attributes of the next stage are evident. These new characteristics, however, are very fragile.

Concrete operations (Seven to Eleven Years)

Welcome to Piaget's next stage which represents another major reorganization of mental structure. You realized that in the preoperational stage children are dreamers with magical thoughts and fantasies in abundance. Now at the concrete operations stage they are young logical positivists who understand functional relationships. They are specific and

can test problems out. For example, if you show children at this age equal amount of water poured into different sizes of glass jars, they will tell you that there is no change in volume. This time around they understand the specific, or concrete, aspects of the problem. It will interest you to know that now they can measure, weigh, and calculate the amount of water so that an apparent difference in shapes won't "fool" them.

However, in their wholehearted abandonment of magical thinking, fantasies, and imaginary "friend", they become almost too literal minded. Their ability to understand the world is now as "logical" as it once was "illogical". For example they can now distinguish between dreams and facts, but they cannot separate guesses from facts (Inhelder & Piaget, 1958). Five-year-olds usually describe a dream as something that happens in their bedroom that they watch like a movie, while nine-year-olds describe dreams as mental images inside their heads. Also, once a nine-year-olds mind is made up on a question, new information will not easily change that point of view.

If during the pre-operational stage, children play around with fantasies, during concrete operations they play around with literal-mindedness. One researcher illustrates this juvenile sophistry with the following story. An eight year old boy comes to table with his hands dripping water. When his mother asks him why he didn't dry his hands he replies, "But you told me not to wipe my hands on the clean towels". His mother throws up her hands and replies "I said not to wipe your dirty hand on the towels". As teachers, we should make our instructions very clear when we are dealing with children.

Activity 6.2

State one difference between intuitive thought and concrete operation thought.

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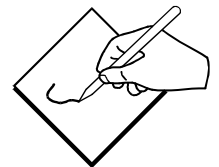
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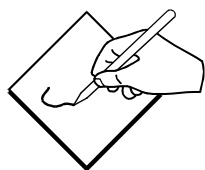
Formal Operations (Eleven to Sixteen Years)

This is the last of the cognitive stages and it is characterized by the adolescents who have attained the ability to think abstractly, develop logical arguments, participate in debates and even think about other people's thoughts. This is what is meant by the term metacognition. This kind of self-reflection allows for a wide-ranging stretch of the imagination. Ideas can be tried out in the mind. In addition, teenagers become aware of how they know as well as what they know. Being conscious of a variety of

learning strategies that might be used is another important characteristic of the teenager. This means the opportunity for self-correction in problem solving is much greater. Teenagers can talk to themselves, a process sometimes called an internal dialogue, and reach new insights without actually needing to test each solution in concrete reality.

Closely related to meta thought is the new awareness that different people have different thoughts about the same idea or situation. In other words, a kind of relativism develops. There is no longer one single and correct point of view. Not everyone understands the same way. In fact Piaget demonstrated repeatedly that young children think everyone views situations as they do. He described these young children as egocentric because they were centered or focused on their own view. Adolescents, however, are more likely to recognize that others viewpoints are different from theirs. It is as though they understand that others have different interests, knowledge, and ways of thinking than they have.

The characteristics of formal operational thinking may have a direct connection to the development of reading ability. The words they read may be significantly different, depending on children's level of formal operations. When the potential for abstract thought is developed, students are able to attain logical, rational, abstract strategies. Symbolic meanings, metaphors, and similes can now be understood. Stories with a moral value can be generalized. Games and simulations can be presented so that the pupils understand their implications. Some powerful means of stimulating abstract thinking are viewing movies and film clips and participating in art activities, such as painting, drama, dance and music. And the more active the symbolic process the more it enhances cognitive growth. During this stage writing poems is more effective than reading poems; making films more effective than viewing them; taking part in drama more effective than observing it.



Activity 6.3

State one difference between concrete operations stage and the formal operation stage

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Some educational implications of Piaget's cognitive theory

A significant educational implication of cognitive development is that growth in any one stage depends on activity. In other words, the development of brain power is not fixed at birth but is a function of

appropriate activity during any particular stage. Children must engage in appropriate activities to learn.

In broad outline the stages of cognitive growth - sensory motor, intuitive or preoperational, concrete, and formal – represent major transformations of mental organization. Each stage is qualitatively different from the preceding one and is a new means of dealing cognitively with the world. However, it is important for educators to understand how cognitive growth occurs. We have already noted the critical importance of activity. Equally significant are Piaget's concepts of accommodation and assimilation. Children at particular stages are maximally able to assimilate particular kinds of experiences. This means, for example, that sensory motor experiences can be most fully taken in from birth to two years, preoperational from two to seven and so on. It also means the opposite, that is, it is difficult to assimilate experiences beyond the level of mental development. Thus, as teachers, we can get children to say they know, or force them to memorize, but we should not be fooled into believing that they really understand. Piaget might say, "To know by heart is not to know".

As a teacher, in introducing new concepts, slightly better problem-solving methods or somewhat more comprehensive theories, remember that you are inducing some equilibration process in the pupils. They will need extra psychological and personal support during such transition periods. In addition as a teacher, remember that there is little sense in teaching preoperational or early concrete thinkers to think abstractly.

Summary

Piaget's work is a significant theory regarding the process of cognitive growth stages. The stages are defined by systems of thinking employed and by modal age. In the sensory motor stage, from birth to twenty-four months, learning is tied to immediate experience; object permanence is learned at this stage. When a child moves into the preoperational stage, from two to seven years of age, language development allows the child to freely associate and fantasize; creativity is a characteristic of this age. Children from seven to eleven years of age are usually in the concrete operations stage. They become logical thinkers. Finally, children reach the stage of formal operations, from eleven to sixteen years when thought enlarges to include possibilities, hypotheses, ideas and the perspective of others. Although children usually operate at the stage appropriate to their age, they are sometimes capable of next-stage-up thinking and teachers should encourage such development.

