

Introduction to Developmental Psychology

GCE 107



University of Ibadan Distance Learning Centre
Open and Distance Learning Course Series Development

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Vice-Chancellor's Message

The Distance Learning Centre is building on a solid tradition of over two decades of service in the provision of External Studies Programme and now Distance Learning Education in Nigeria and beyond. The Distance Learning mode to which we are committed is providing access to many deserving Nigerians in having access to higher education especially those who by the nature of their engagement do not have the luxury of full time education. Recently, it is contributing in no small measure to providing places for teeming Nigerian youths who for one reason or the other could not get admission into the conventional universities.

These course materials have been written by writers specially trained in ODL course delivery. The writers have made great efforts to provide up to date information, knowledge and skills in the different disciplines and ensure that the materials are user-friendly.

In addition to provision of course materials in print and e-format, a lot of Information Technology input has also gone into the deployment of course materials. Most of them can be downloaded from the DLC website and are available in audio format which you can also download into your mobile phones, IPod, MP3 among other devices to allow you listen to the audio study sessions. Some of the study session materials have been scripted and are being broadcast on the university's Diamond Radio FM 101.1, while others have been delivered and captured in audio-visual format in a classroom environment for use by our students. Detailed information on availability and access is available on the website. We will continue in our efforts to provide and review course materials for our courses.

However, for you to take advantage of these formats, you will need to improve on your I.T. skills and develop requisite distance learning Culture. It is well known that, for efficient and effective provision of Distance learning education, availability of appropriate and relevant course materials is a *sine qua non*. So also, is the availability of multiple plat form for the convenience of our students. It is in fulfilment of this, that series of course materials are being written to enable our students study at their own pace and convenience.

It is our hope that you will put these course materials to the best use.



Prof. Abel Idowu Olayinka
Vice-Chancellor

Foreword

As part of its vision of providing education for “Liberty and Development” for Nigerians and the International Community, the University of Ibadan, Distance Learning Centre has recently embarked on a vigorous repositioning agenda which aimed at embracing a holistic and all encompassing approach to the delivery of its Open Distance Learning (ODL) programmes. Thus we are committed to global best practices in distance learning provision. Apart from providing an efficient administrative and academic support for our students, we are committed to providing educational resource materials for the use of our students. We are convinced that, without an up-to-date, learner-friendly and distance learning compliant course materials, there cannot be any basis to lay claim to being a provider of distance learning education. Indeed, availability of appropriate course materials in multiple formats is the hub of any distance learning provision worldwide.

In view of the above, we are vigorously pursuing as a matter of priority, the provision of credible, learner-friendly and interactive course materials for all our courses. We commissioned the authoring of, and review of course materials to teams of experts and their outputs were subjected to rigorous peer review to ensure standard. The approach not only emphasizes cognitive knowledge, but also skills and humane values which are at the core of education, even in an ICT age.

The development of the materials which is on-going also had input from experienced editors and illustrators who have ensured that they are accurate, current and learner-friendly. They are specially written with distance learners in mind. This is very important because, distance learning involves non-residential students who can often feel isolated from the community of learners.

It is important to note that, for a distance learner to excel there is the need to source and read relevant materials apart from this course material. Therefore, adequate supplementary reading materials as well as other information sources are suggested in the course materials.

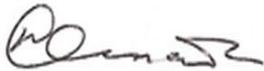
Apart from the responsibility for you to read this course material with others, you are also advised to seek assistance from your course facilitators especially academic advisors during your study even before the interactive session which is by design for revision. Your academic advisors will assist you using convenient technology including Google Hang Out, You Tube, Talk Fusion, etc. but you have to take advantage of these. It is also going to be of immense advantage if you complete assignments as at when due so as to have necessary feedbacks as a guide.

The implication of the above is that, a distance learner has a responsibility to develop requisite distance learning culture which includes diligent and disciplined self-study, seeking available administrative and academic support and acquisition of basic information technology skills. This is why you are encouraged to develop your computer skills by availing yourself the opportunity of training that the Centre’s provide and put these into use.

In conclusion, it is envisaged that the course materials would also be useful for the regular students of tertiary institutions in Nigeria who are faced with a dearth of high quality textbooks. We are therefore, delighted to present these titles to both our distance learning students and the university's regular students. We are confident that the materials will be an invaluable resource to all.

We would like to thank all our authors, reviewers and production staff for the high quality of work.

Best wishes.

A handwritten signature in black ink, appearing to read 'Bayo Okunade', written in a cursive style.

Professor Bayo Okunade
Director

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Study Session 1: The Scientific Nature of Development

Expected duration: 1 week or 2 contact hour

Introduction

Developmental psychology examines the influences of nature and nurture on the process of human development, and processes of change in context and across time. Many researchers are interested in the interaction between personal characteristics, the individual's behavior and environmental factors, including social context and the built environment.

In this study session, you will learn about the scientific nature of developmental psychology, basically the science of growth as well as the processes involved in child and adolescent development. You should also be exposed to the research strategies employed in developmental psychology.

Learning Outcomes for Study session 1

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

- 1.1 Define child development
- 1.2 Explain the scientific strategies of the study of child development

1.1 Developmental psychology as a science

Developmental psychology is the scientific study of how and why human beings change over the course of their life. Originally concerned with infants and children, the field has expanded to include adolescence, adult development, aging, and the entire lifespan.

This field examines change across a broad range of topics including: motor skills, cognitive development, executive functions, moral understanding, language acquisition, social change, personality, emotional development, self-concept and identity formation.

Empirical research in this area tends to be dominated by psychologists from Western cultures such as North American and Europe, although during the 1980s Japanese researchers began making a valid contribution to the field. The three goals of developmental psychology are to describe, explain, and to optimize development **Baltes, Reese, & Lipsitt, 1980.**



Figure 1.1: *Developmental Psychology in process*

Source: <http://lindenbp.com/wp-content/uploads/2014/11/teacher-with-student.jpg>

To describe development it is necessary to focus both on typical patterns of change (normative development) and on individual variations in patterns of change (i.e. idiographic development).

"Normative development" is seen as a way of "using stages of development, matching ages to ability or skills and using the 'milestones approach'" (**Dryden, L et al**) Milestones illustrate what most children are likely to be doing by a specific age for example being able to hold your head up, look and communicate between the ages of 0 to 8 months and also to start walking and talking by the ages of 24 and 36 months.



Figure 1.2: *A Child's development*

Source: <http://www.child-development-guidance.com/images/692xNxstages.jpg.pagespeed.ic.jXjl7C1X3a.jpg>

Developmental psychology is the scientific study of how and why human beings change over the course of their life. Originally concerned with infants and children, the field has expanded to include adolescence, adult development, aging, and the entire lifespan.

This field examines change across a broad range of topics including: motor skills, cognitive development, executive functions, moral understanding, language

acquisition, social change, personality, emotional development, self-concept and identity formation.

The three main processes that can cause individual change across his lifetime are:



Figure 1.3: Causes of changes across a human lifetime

1.1.1 Maturation

Maturation is the process of becoming mature; the emergence of individual and behavioral characteristics through growth processes over time.

It can also refer to any of the following:

- ❖ Fetal development
- ❖ Developmental biology
- ❖ Psychological development

In-Text Question

Maturation refers to developmental changes that occur as a result of the aging process and other life experience, TRUE/FALSE _____?

In-Text Answer

FALSE

1.1.2 Learning

On the other hand, learning is a relatively permanent change in behaviour (or potential behaviour) as a result of experience or practice. For example when you were a child, your environment and the learning that occurs as a result of your experiences largely influence your development. A stimulating environment and varied experiences allows you to develop your potentials.

1.1.3 Critical Periods

In developmental psychology and developmental biology, a critical period is a maturational stage in the lifespan of an organism during which the nervous system is especially sensitive to certain environmental stimuli.

If, for some reason, the organism does not receive the appropriate stimulus during this "critical period" to learn a given skill or trait, it may be difficult, ultimately less successful, or even impossible, to develop some functions later in life.

Functions that are indispensable to an organism's survival, such as vision, are particularly likely to develop during critical periods. "Critical period" also relate to

ability to acquire first language. Researchers found that people who passed "critical period" would not acquire first language fluently

In-Text Question

A stimulating environment and varied experiences allows you to develop your potentials, TRUE/FALSE _____?

In-Text Answer

TRUE

1.2 Research Strategies in Developmental Psychology

Scientific research is objective, systematic, and repeatable. It reduces the likelihood that information will be based on personal beliefs, opinions, and feelings. Scientific research is based on the scientific method, an approach that can be used to discover accurate information.

It involves the processes of: conceptualizing the problem, collecting requisite data, drawing conclusions, and revising research conclusions and formulating a theory therefrom.

1. The first step, conceptualizing a problem, involves identifying the problem. For example, a team of researchers decides that they should study ways to improve the achievement of children from impoverished backgrounds. The researchers have identified a problem, which, at a general level, might not seem like a difficult task. However, as part of the first step, they also must go beyond a general description of the problem by isolating, analysing, narrowing, and specifically focusing more on what aspect of it they hope to study. Perhaps, the researchers decide to discover if mentoring can improve the academic performance of children from poor economic backgrounds. At this point, even more narrowing and focusing needs take place.



Figure 1.4: Mentoring

Source: <http://thepersonalbrandprofessor.com/wp-content/uploads/2014/09/Mentoring-Pic-1.jpg>

What specific strategies do the researchers want the mentors to use? How often will the mentors see the children? How long will the mentoring programmes last? What aspects of the children's achievement do the researchers want to assess? As

researchers formulate a problem to study, they often draw on theories and develop hypotheses.

2. The next step is to collect information (data). In a study, a researcher might decide to see if one method of teaching is better than another, teachers' ratings, and achievement tests given to the learners before the teaching began and at the end of the month are forms of data collected.
3. Once data have been collected, child development researchers use statistical procedures to understand the meaning of the data. Then they try to draw some conclusion. In the study of mentoring, statistics would help determine whether or not the observations are due to chance. After data have been analysed, researchers compare their findings with those others have found about the same topic.
4. The final step in the scientific method is revising research conclusions and a number of theories that have been generated to describe and explain children's development. Over time, some theories have been discarded, others revised. In the next chapter subsequent ones, you will read about a number of theories of development.

At this point you have studied a number of ideas about why research on child and adolescent development is important and the scientific research approach. A summary of the discussion is given below. You have seen that theorizing is often of the scientific approach. Next, you will explore some of the major theories of development.

Activity 1.1 Test the Science of Developmental psychology

Time Allowed: 1 month

Engage in play with a child, let the role involve learning. Then do some practice with him/her within a space of 7 days consistently. At the end of the month, return to that same child and play exactly like the first time. Specifically state the changes, either positive or negative that you observe.

Summary of Study Session 1

In this study, you have learnt that:

1. Developmental psychology as a science
2. Scientific strategies are usually used to obtain information on child and adolescent development. However before going into that we first explained why developmental psychology is regarded as scientific in nature.

Self-Assessment Questions SAQs for Study Session 1

Now that you have completed this study session, you can assess how well you have achieved its Learning outcomes by answering the following questions. Write your answers in your study Diary and discuss them with your Tutor at the next study Support Meeting. You can check your answers with the Notes on the Self-Assessment questions at the end of this Module.

SAQ 1 (Tests Learning Outcome 1.1)

- a) What is developmental psychology?
- b) Write short notes on (i) Maturation (ii) Learning

SAQ 2 (Tests Learning Outcome 1.2)

- a) Define observation method
- b) Discuss steps in obtaining information scientifically in child development.

Notes on SAQs for Study Session 1

SAQ 1

- (a) Developmental psychology is a scientific study of how individuals change over time and the processes that create those changes across the entire lifespan.
- (b) **Maturation** refers to the sequential characteristics of biological growth and development. Changes in the brain and nervous system account largely for maturation. These changes in the brain and nervous system help children to improve in thinking (cognitive) and motor (physical) skills.

Learning is a relatively permanent change in behaviour (or potential behaviour) as a result of experience or practice.

SAQ 2

1. The first step, conceptualizing a problem, involves identifying the problem. It might include theory, and it consists of developing one or more hypotheses. For example, a team of researchers decides that they should study ways to improve the achievement of children from impoverished backgrounds. The researchers have identified a problem, which, at a general level, might not seem like a difficult task.

However, as part of the first step, they also must go beyond a general description of the problem by isolating, analysing, narrowing, and specifically focusing more on what aspect of it they hope to study. Perhaps, the researchers decide to discover if mentoring can improve the academic performance of children from poor economic backgrounds. At this point, even more narrowing and focusing needs take place.

What specific strategies do the researchers want the mentors to use? How often will the mentors see the children? How long will the mentoring programmes last? What aspects of the children's achievement do the researchers want to assess? As researchers formulate a problem to study, they often draw on theories and develop hypotheses.

A theory is an interrelated, coherent set of ideas that helps to explain and to make predictions. For example, a theory on mentoring might attempt to explain and predict why sustained support, guidance, and concrete experience make difference in the lives of children from impoverished backgrounds.

The theory might focus on children's opportunities to model the behaviour and strategies of mentors, or it might focus on the effects of individual attention, which might be missing in the children's lives. Hypotheses are specific testable assumptions and predictions that are derived from theories.

2. The next step is to collect information (data). In a study, a researcher might decide to see if one method of teaching is better than another, teachers' ratings, and

achievement tests given to the learners before the teaching began and at the end of the month are forms of data collected.

3. Once data have been collected, child development researchers use statistical procedures to understand the meaning of the data. Then they try to draw some conclusion. In the study of mentoring, statistics would help determine whether or not the observations are due to chance. After data have been analysed, researchers compare their findings with those others have found about the same topic.

4. The final step in the scientific method is revising research conclusions and a number of theories that have been generated to describe and explain children's development. Over time, some theories have been discarded, others revised. In the next chapter subsequent ones, you will read about a number of theories of development.

At this point we have studied a number of ideas about why research on child and adolescent development is important and the scientific research approach. A summary of our discussion is given below. We have seen that theorizing is often of the scientific approach. Next, we will explore some of the major theories of development.

Study Session 2 Principles of Human Development and Growth

Expected duration: 1 week or 2 contact hour

Introduction

Expressions such as "Don't be childish" or "Act your age" clearly show what is normal and expected behavior for one age level and which may not be typical of another. The needs, desires, and aspirations of an individual undergo continuous modification. Beliefs, opinions, attitudes, emotional responses, intellectual abilities - all the dimensions of personality - always change throughout man's life span.

In order that man may know and understand himself and all things about him better, developmental psychology seeks to trace the sequential changes in human personality. In this study, you will study the basic principles of human development and growth. Furthermore, the major controversies in developmental psychology will be discuss.

Learning Outcomes for Study Session 2

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

- 2.1 Identify the basic principles of human growth;
- 2.2 Describe the various age long controversies in human development.

2.1 Principles of human development and growth

There is a set of principles that characterizes the pattern and process of development and growth. These principles or characteristics describe typical development as a predictable and orderly process; that is, you 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.



Figure 2.1: Children gaining some experience

Source:http://www.haustschenett.com/fileadmin/_processed_/csm_022fa_E7T7535_72_470c62601e.jpg
pg

An understanding of the principles of development helps you to plan appropriate activities as well as stimulating and enriching experiences for children. It also provides a basis for understanding how to encourage and support young children's learning.

1. Development proceeds from the head downwards. This is called the **cephalocaudal** principle. This principle describes the direction of growth and development. According to this principle, the child gains control of the head first, then the arms, and then the 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 their legs and, therefore, may be able to crawl, stand, or walk. Coordination of arms always precedes coordination of legs.
2. Development proceeds from the centre of the body outwards. This is the principle of proximodistal development that 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 the hands and feet develop before the fingers and toes. The muscles of the fingers and toes (used in fine motor dexterity) are the last to develop in physical development.
3. Principle of sequential development: (Development depends on maturation and learning). The biological changes occur in sequential order and give children new abilities. This means that children must be mature to a certain level before they can progress to new skills (Readiness). For example, a four-month-old cannot use language because the infant's brain is not mature enough to allow the child to talk. By two years old, the brain has developed further and with help from others, the child will have the capacity to say and understand words. Also, a child can't write or draw until he has developed the motor control to hold a pencil or crayon.
4. Development proceeds from the simple (concrete) to the more complex. Children use their cognitive and language skills to reason and solve problems. For example, learning relationships between things (how things are similar), or classification, is an important ability in cognitive development. The cognitive process of learning how an apple and orange are alike begins with the most simplistic or concrete thought of describing the two. As children develop further in cognitive skills, they are able to understand a higher and more complex relationship between objects and things; that is they would understand that an apple and an orange exist in a class of fruits. The child cognitively is then capable of classification.
5. Growth and development as 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 skills. Most children follow a similar pattern. Also, one stage of development lays the foundation for the next stage of development. For example, in motor development, there is a predictable sequence of developments 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 a crayon.

6. Growth and development proceed from the general to the specific. In motor development, the infant will be able to grasp an object with the whole hand before using only the thumb and forefinger. The infant's first motor movements are very generalized, undirected, and reflexive, waving arms or kicking before being able to reach or creep towards an object. Growth occurs from large muscle movements to more refined (smaller) muscle movements.
7. Principle of discontinuity of growth: the growth is accelerated and slow down later. This means that development involves distinct and separate stages with different kinds of behaviour occurring in each stage. This suggests that the development of certain abilities in each stage have a definite starting and ending point. However, there is no exact time at which ability suddenly appears or disappears.
8. Principle of individual differences: 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 for growth and development are usually the same for all children, the rates at which individual children reach developmental stages will be different. Understanding this fact of individual differences in rates of development should cause us to be careful about using and relying on age and stage characteristics to describe or label children. There is a range of ages for any developmental task to take place. This dismisses the notion of the "average child". Some children will walk at ten months while others walk a few months older at eighteen months of age. Some children are more active while others are more passive. This does not mean that the passive child will be less intelligent as an adult. There is no point in comparing one child's progress with or against that of another child. The rate of development of certain personal characteristics of a given child may not be uniform. For example, a child's intellectual development may progress faster than his emotional or social development.

In-Text Question

Development from the head downwards is called _____?

- a) Principle of discontinuity
- b) Principle of continuity
- c) Cephalocaudal principle
- d) Proximodistal principle

In-Text Answer

(c) Cephalocaudal principle

2.2 Major controversies in developmental psychology

There are major controversies in developmental psychology, which are as follows:

1. Nature-Nurture

a. How much of an individual's development is due to nature and how much to nurture? For instance, the development of twins are sometimes different

b. Typically, developmental psychologists are interested in looking at how these factors interact, rather than trying to decide which is more important.

2. **Continuity-Discontinuity**

a. Whether human development occurs gradually, or occurs in a series of breakthroughs.

b. The people who believe that development is a series of stages belong to the continuity camp, while the people who believe that a child would have to work through would be in the discontinuity camp.

3. **Universality-Particularity**

a. Does everyone go through the same developmental processes/stages/aspects or does development vary across people, and cultures?

b. Although people seem to develop abilities at approximately the same age this view has been called too simplistic.

c. Cultural differences, as well as family differences, may influence development. Development may be much more multifaceted.

Activity 2.1: Test if Children experience over time Influences them

Time Allowed: 2 hours

Recall: **In activity 1.1**, you were told to state clearly every change that you observe in the baby, either positive or negative. State how the child have developed through that play and in what way

Summary of Study Session 2

In this study, you have learnt that:

1. There is a set of principles that characterizes the pattern and process of development and growth.
2. There are major controversies in developmental psychology.

Self-Assessment Questions SAQs for Study Session 2

Now that you have completed this study session, you can assess how well you have achieved its Learning outcomes by answering the following questions. Write your answers in your study Diary and discuss them with your Tutor at the next study Support Meeting. You can check your answers with the Notes on the Self-Assessment questions at the end of this Module.

SAQ 1 (Tests Learning Outcome 2.1)

Mention and discuss four (4) principles of human development and growth.

SAQ 2 (Tests Learning Outcome 2.2)

In your own understanding, what is the nature vs. nurture controversy all about?

Notes on SAQs for Study Session 2

SAQ 1

1. Development proceeds from the head downwards. This is called the cephalocaudal principle. This principle describes the direction of growth and development. According to this principle, the child gains control of the head first, then the arms, and then the 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 their legs and, therefore, may be able to crawl, stand, or walk. Coordination of arms always precedes coordination of legs.

2. Development proceeds from the centre of the body outwards. This is the principle of proximodistal development that 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 the hands and feet develop before the fingers and toes. The muscles of the fingers and toes (used in fine motor dexterity) are the last to develop in physical development.

3. Principle of sequential development: (Development depends on maturation and learning). The biological changes occur in sequential order and give children new abilities. This means that children must be mature to a certain level before they can progress to new skills (Readiness).

For example, a four-month-old cannot use language because the infant's brain is not mature enough to allow the child to talk. By two years old, the brain has developed further and with help from others, the child will have the capacity to say and understand words. Also, a child can't write or draw until he has developed the motor control to hold a pencil or crayon.

4. Development proceeds from the simple (concrete) to the more complex. Children use their cognitive and language skills to reason and solve problems. For example, learning relationships between things (how things are similar), or classification, is an important ability in cognitive development. The cognitive process of learning how an apple and orange are alike begins with the most simplistic or concrete thought of describing the two.

As children develop further in cognitive skills, they are able to understand a higher and more complex relationship between objects and things; that is they would understand that an apple and an orange exist in a class of fruits. The child cognitively is then capable of classification.

SAQ 2

Nature-Nurture

a. How much of an individual's development is due to nature and how much to nurture?

b. Typically, developmental psychologists are interested in looking at how these factors interact, rather than trying to decide which is more important.

Study Session 3: Historical Views of Childhood Development

Expected duration: 1 week or 2 contact hour



Over the years research shows that child development is dependent on their environment and the information enhancing their learning.



Introduction

The history of childhood has been a topic of interest in social history since the highly influential book *Centuries of Childhood*, published by French historian **Philippe Ariès** in 1960. He argued that "childhood" is a concept created by modern society. **Ariès** studied paintings, gravestones, furniture, and school records and found that before the 17th-century, children were represented as mini-adults.

In this study your focus should be to learn two basic things; Philosophers views and theories about early childhood and Modern views of expert on early childhood.

Learning Outcomes for Study Session 3

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

- 3.1 State the three major views of philosophers about early childhood;
- 3.2 Examine modern views of experts on early childhood.

3.1 Medieval understanding of 'childhood' development

Firstly, you are required to go through the historical view of Childhood as stated below. It is recommended in order for you to be in a proper perspective of the foundational background of Medieval Childhood development.

3.1.1 Historical View of Childhood

- A. Ancient Greece & Rome (600 B.C. to 400 A.D.):
1. Plato (427-347 B.C.): nativist - knowledge is inborn
 2. Aristotle (384-322 B.C.): empiricist - knowledge gained through sensory experience.
 3. Infanticide - killing of new-borns - females especially
 4. Slave labour - sexual exploitation
- B. Medieval Period (1400 A.D. fall of Rome): children wore adult fashions and pursued adult passions, but were also seen as fragile and in need of protection.
1. Church Ruled: Christianity - send unwanted children to convents and monasteries. Children seen as born with original sin.
- C. Renaissance (1300 - 1600's):
1. Growing belief that society is partly responsible for care and protection of children. Toy making industry - play was seen as normal and important in the development of the child.
- D. Reformation (1500's): child rearing taken seriously, emphasis on education.
- E. **Descartes Dualistic Model** (1596-1650): he believed that we shared our biology with animals (this paved the way for studying animals to gain knowledge about humans), but the mind was something humans alone had. The mind contains certain "innate ideas" (e.g., God and self; ideas of space, time, and motion) which are not derivable from experience.

3.1.2 Early Theories

Some of the theories are:

- A. **John Locke** (1632-1704): Empiricism - all knowledge comes from experience ("Tabula Rasa" - blank slate).
- B. **Jean-Jacques Rousseau** (1712-1778): Nativism - innate processes driving force behind development. Human development unfolds naturally in very positive ways as long as society allows it to do so.
- C. **Charles Darwin** (1809-1882): competition for survival, natural selection, evolutionary value of behaviours (ethology).
1. The baby biographies: Darwin observed and recorded his eldest son's behaviour.

3.1.3 Pioneers of Child Psychology

A. **G. Stanley Hall** (1844-1924): Father of child Psychology

1. Questionnaire Method: groups of children
2. Biological view - influenced by Darwin

B. **Sigmund Freud** (1856-1939): stage theorist (psychosexual model - drive theory), experience during each stage influences development (fixation).

C. **John B. Watson** (1878-1958): founder of behaviourism

1. Got rid of consciousness as an area of scientific study
2. Psychology as a purely objective experimental branch of natural science: the goal is the prediction and control of behaviour.

D. **Arnold Gesell** (1920's & 1930's): normative patterns - these patterns unfold naturally with maturation.

E. **Jean Piaget** (1896-1980): Genetic Epistemology (knowledge and its changes)

1. Qualitative Differences in mistakes children made - incorrect answers to IQ questions more informative than correct ones - same kinds of mistakes were made by children of same age.
2. Theories based on observation made by Piaget and his wife on their own children - criticized for use of own children.

In-Text Question

Competition for survival, natural selection, evolutionary value of behaviours (ethology) was a theory by _____?

- a) Charles Darwin
- b) Arnold Gesell
- c) John Locke
- d) Sigmund Freud

In-Text Answer

- a) Charles Darwin

3.1.4 General Principles of Developmental Psychology:

- ❖ All the areas of development and learning are very important.
- ❖ Learning and development must follow sequences.
- ❖ Development and learning always proceed at varying rates.
- ❖ Development and learning normally result from an interaction of maturation and experience.
- ❖ Early experiences always have profound effects on development and learning.
- ❖ Development always proceeds toward greater complexity, self-regulation, and symbolic or representational capacities.
- ❖ Children always develop best when they have secure relationships.
- ❖ Development and learning occur in and are always influenced by multiple social and cultural contexts.
- ❖ Children always learn in a variety of ways.

- ❖ Play is an essential vehicle for developing self-regulation and promoting language, cognition, and social competence.
- ❖ Development and learning are advanced when children are challenged.
- ❖ Children's experiences always shape their motivation and approaches to learning

3.2 The Modern Study of Child Development

The modern era of studying children has a history that spans only a little more than a century (Cairns, 1983, 1998). This era began with some important developments in the late 1800s. Why is this past century so special? During the past century, the study of child development has evolved into a sophisticated science. A number of major theories, along with elegant techniques and methods of study, help organize our thinking about children's development (Dixon & Lerner, 1999).

In the field of child development, this was true of such influential thinkers as **Charles Darwin**, **G. Stanley Hall**, **James Mark Baldwin**, and **Sigmund Freud**. The natural scientists, even then, underscored the importance of conducting experiments and collecting reliable observations of what they studied.

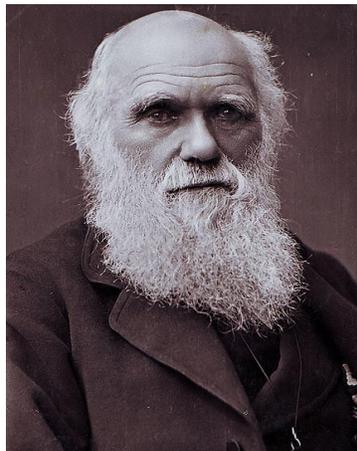


Figure 3.4: Charles Darwin

Source: https://upload.wikimedia.org/wikipedia/commons/b/bf/Charles_Darwin_photograph_by_Herbert_Rose_Barraud,_1881.jpg

This approach had advanced the state of knowledge in physics, chemistry, and biology; however, these scientists were not at all sure that people, much less children or infants, could be profitably studied in this way. Their hesitation was partially due, to a lack of examples to follow in studying children. In addition, philosophers of the time debated, on both intellectual and ethical grounds, whether the methods of science were appropriate for studying people.

The deadlock was broken when some daring thinkers began to study infants, children, and adolescents, trying new methods of study. For example, near the turn of the century, French psychologist, **Alfred Binet**, invented many tests to study attention and memory. He used them to study his own daughters, other normal children, children with mental retardation, extremely gifted children, and adults.



Figure 3.5: Alfred Binet

Source: https://upload.wikimedia.org/wikipedia/commons/4/4f/Alfred_Binet.jpg

Eventually, he collaborated in the development of the first modern test of intelligence, which is named after him (the Binet test). At about same time, G. Stanley Hall pioneered the use of questionnaires with large groups of children and popularized psychological findings. In one investigation, Hall tested 400 children in Boston schools to find out how much they “knew” about themselves and the world, asking them such questions as “Where are your ribs?”

Later, during the 1920s, a large number of child development research centres were created (White, 1995), and members of their professional staff began to observe and chart a myriad of behaviours in infants and children. The centres at the Universities of Minnesota, Iowa, and California at Berkeley, Columbia, and Toronto became famous for their investigations of children’s play, friendship patterns, fears, aggression and conflict, and sociability.

This work became closely associated with the so-called child study movement, and a new organization, the Society for Research in Child Development, was formed at about the same time.

Another ardent observer of children was **Arnold Gesell**. With his photographic dome, Gesell (1928) could systematically observe children’s behaviour without interrupting them. The direct study of children which investigators observed children’s behaviour, conduct experiments, and obtain information about children by questioning their parents and teachers, had an auspicious start in the work of these child study experts. The flow of information about children, based on direct study, has not slowed since that time.



Figure 3.6: Arnold Gesell

Source: <https://ihm.nlm.nih.gov/MediaManager/srvr?mediafile=/Size4/D1018/b08003.jpg>

Gesell not only developed sophisticated observational strategies for studying children, but he also had some provocative views on the nature of children’s development. He theorized that certain characteristics of children simply “bloom” with age because of a biological, maturational blueprint. Gesell strove for precision in charting what a child is like at a specific age.

Gesell’s views, as well as **G. Stanley Hall’s**, were strongly influenced by Charles Darwin’s evolutionary theory (Darwin had made the scientific study of children respectable when he developed a baby journal for recording systematic observations of children). Hall (1904) believed that child development follows a natural evolutionary course that can be revealed by child study

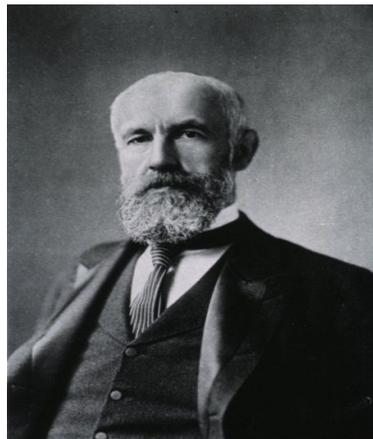


Figure 3.7: G. Stanley Hall

Source: https://upload.wikimedia.org/wikipedia/commons/b/b4/G._Stanley_Hall.jpg

He also theorized that child development unfolds in stages, with distinct motives and capabilities at each stage. Hall had much to say about adolescence, arguing that it is full of “storm and stress.”

Sigmund Freud’s psychoanalytic theory was prominent in the early part of the 20th century. Freud believed that children are rarely aware of the motives and reasons for

their behaviour and that the bulk of their mental life is unconscious. His ideas were compatible with Hall's, emphasizing conflict and biological influences on development; although Freud did stress that a child's experiences with parents in the first 5 years of life are important determinants of later personality development.

Freud envisioned the child moving through a series of psychosexual stages, filled with conflict between biological urges and societal demands. Freud's theory has had a profound influence on the study of children's personality development and socialization, especially in the areas of gender, morality, family processes, and problems and disturbances.

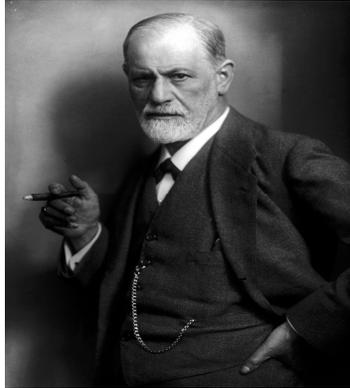


Figure 3.8: SigmundFreud

Source: https://upload.wikimedia.org/wikipedia/commons/1/12/Sigmund_Freud_LIFE.jpg

During the 1920s and 1930s, **John Watson's** (1928) theory of behaviourism influenced thinking about children. Watson proposed a view of children very different from Freud's, arguing that children can be shaped into what- ever society wishes by examining and changing the environment.

One element of Watson's view and of behaviourism in general, was a strong belief in the systematic observation of children's behaviour under controlled conditions. Watson had some provocative views about child rearing as well. He stated that parents are too soft with children. He said that they should quit cuddling and smiling at babies so much.

Whereas John Watson was observing the environment's influence on children's behaviour and Sigmund Freud was probing the depths of the unconscious mind to discover clues about our early experiences with our parents, others were more concerned about the development of children's conscious thoughts that is, the thoughts of which they are aware. **James Mark Baldwin** was a pioneer in the study of children's thought (Cairns, 1998).

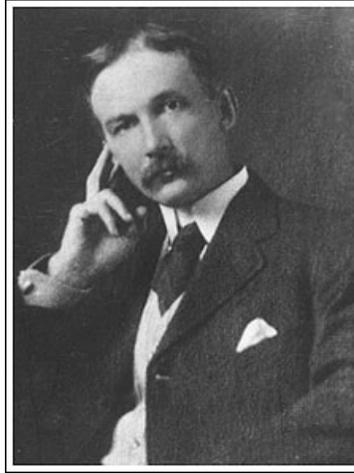


Figure 3.9: James Mark Baldwin

Source: <http://www.ts4.com/Quotes/Pictures/JamesMarkBaldwin.jpg>

Genetic epistemology was the term Baldwin gave to the study of how children's knowledge changes over the course of their development. (The term genetic at that time was a synonym for "developmental" and the term epistemology means "the nature or study of knowledge.") Baldwin's ideas initially were proposed in the 1880s. Later, in the 20th century, Swiss psychologist, **Jean Piaget**, adopted and elaborated on many of Baldwin's themes, keenly observing the development of thoughts in his own children and devising clever experiments to investigate how children think. Piaget became a giant in developmental psychology.

Many of you, perhaps, are already familiar with his view that children pass through a series of cognitive, or thought, stages from infancy through adolescence. According to Piaget, children think in a qualitatively different manner than adults do.

The introduction to several influential and diverse theories of children's development has been brief, designed to give you a glimpse of some of the different ways children have been viewed as the study of child development unfolded.

In-Text Question

_____ invented many tests to study attention and memory?

- a) Alfred Binet
- b) Sigmund Freud
- c) James Mark Baldwin
- d) Stanley Hall

In-Text Answer

- a) Alfred Binet

Summary of Study Session 3

At the end of this study session, you have learnt that:

1. Childhood has become such a distinct period that it is hard to imagine that it was not always thought of in that way.
2. The modern era of studying children has a history that spans only a little more than a century (Cairns, 1983, 1998). This era began with some important

developments in the late 1800s. Why is this past century so special? During the past century, the study of child development has evolved into a sophisticated science.

Self-Assessment Questions for Study Session 3

Now that you have completed this study session, you can assess how well you have achieved its Learning outcomes by answering the following questions. Write your answers in your study diary and discuss them with your Tutor at the next study Support Meeting. You can check your answers with the Notes on the Self-Assessment questions at the end of this Module.

SAQ 3.1 (Testing Learning outcomes 3.1)

State briefly the three major views of philosophers about early childhood

SAQ 3.2 (Testing Learning outcomes 3.2)

Write short notes on the views of modern experts about child development.

Notes on SAQs for Study session 3

SAQ 1

A. John Locke (1632-1704): Empiricism - all knowledge comes from experience ("Tabula Rasa" - blank slate).

B. Jean-Jacques Rousseau (1712-1778): Nativism - innate processes driving force behind development. Human development unfolds naturally in very positive ways as long as society allows it to do so.

C. Charles Darwin (1809-1882): competition for survival, natural selection, evolutionary value of behaviours (ethology).

SAQ 2

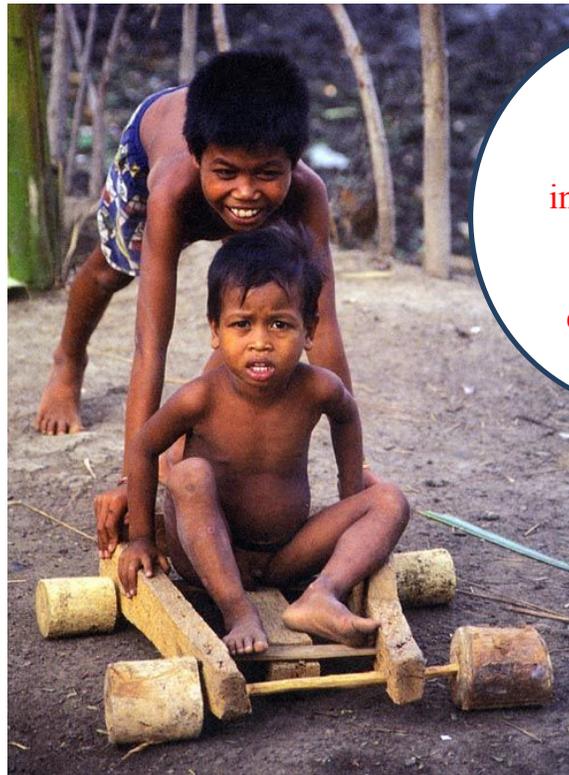
In the field of child development, this was true of such influential thinkers as Charles Darwin, G. Stanley Hall, James Mark Baldwin, and Sigmund Freud. The natural scientists, even then, underscored the importance of conducting experiments and collecting reliable observations of what they studied.

This approach had advanced the state of knowledge in physics, chemistry, and biology; however, these scientists were not at all sure that people, much less children or infants, could be profitably studied in this way. Their hesitation was partially due, to a lack of examples to follow in studying children. In addition, philosophers of the time debated, on both intellectual and ethical grounds, whether the methods of science were appropriate for studying people.

The deadlock was broken when some daring thinkers began to study infants, children, and adolescents, trying new methods of study. For example, near the turn of the century, French psychologist, Alfred Binet, invented many tests to study attention and memory. He used them to study his own daughters, other normal children, children with mental retardation, extremely gifted children, and adults.

Study Session 4 Theories of Child Development

Expected duration: 1 week or 2 contact hour



An infant
interacting with
its'
environment,

Introduction

As a continuation of the previous study Historical views of a Childhood development. In this session, you should learn some relevant theories of child development. Specifically, focus will be on **Sigmund Freud's** Psycho-analytic theory, **Erik Erikson's** Psycho-social theory, and **Jean Piaget's** cognitive developmental theory.

Learning outcomes for Study Session 4

At the end of this study session you should be able to:

- 4.1 Explain Psychoanalytic theory
- 4.2 Discuss Psycho-social theory
- 4.3 Explain Piaget's Cognitive developmental theory

4.1 Psychoanalytic Theory of Sigmund Freud

Sigmund Freud (1856—1939) developed his ideas about psychoanalytic theory from work with mental patients. He was a medical doctor who specialized in neurology. He spent most of his years in Vienna, though he moved to London near the end of his career because of the Nazis' anti-Semitism. **Freud** (1917) believed that personality has three structures: the *id*, the *ego*, and the *superego*.

The *id* is the Freudian structure of personality that consists of instincts, which are an individual's reservoir of psychic energy. In Freud's view, the *id* is totally unconscious; it has no contact with reality. As children experience the demands and constraints of reality, a new structure of personality emerges—the *ego*, the Freudian structure of personality that deals with the demands of reality.



Figures 4.1: Sigmund Freud

Source: http://cp91279.biography.com/1000509261001/1000509261001_1980656760001_BIO-Biography-Sigmund-Freud-LF.jpg

The *ego* is called the executive branch of personality because it is the rational part of the personality. The *id* and the *ego* have no morality. They do not take into account whether something is right or wrong. The *superego* is the Freudian structure of personality that is the moral branch of personality. The *superego* takes into account whether something is right or wrong.

For example, a parent might wean a child too early, be too strict in toilet training the child, punish the child for masturbation, or “smother” the child with too much attention.

- ✚ **The oral stage** is the first Freudian stage of development. This occurs during the first 1-8 months of life in which the infant's pleasure centres on the mouth. Chewing, sucking, and biting are the chief sources of pleasure. These actions reduce tension in the infant.
- ✚ **The anal stage** is the second Freudian stage of development. This occurs between 1 and 3 years of age, in which the child's greatest pleasure involves the anus or the eliminative functions associated with it. In Freud's view, the exercise of anal muscles reduces tension.
- ✚ **The phallic stage** is the third Freudian stage of development, which occurs between the ages of 3 and 6; its name comes from the Latin word *phallus*,

which means “penis.” During the phallic stage, pleasure focuses on the genitals as the child discovers that self-manipulation is enjoyable.



Figure 4.2: Children between ages 3 and 6

Source: http://www.hardings.org/wp-content/uploads/2014/02/photo_3.jpg

At about 5 to 6 years of age, children recognize that their same-sex parent might punish them for their incestuous wishes. To reduce this conflict, the child identifies with the same-sex parent, striving to be like him or her. If the conflict is not resolved, though, the individual may become fixated at the phallic stage.

- ✚ **The latency stage** is the fourth Freudian stage of development, which occurs between approximately 6 years of age and puberty. At this stage, the child represses all interest in sexuality and develops social and intellectual skills. This activity channels much of the child’s energy into emotionally safe areas and helps the child forget the highly stressful conflicts of the phallic stage.



Figure 4.3: A 6 year old girl

Source: http://blogs-images.forbes.com/tobyshapshak/files/2015/09/BRCK_Kenyan_student2.jpg

- ✚ **The genital stage** is the fifth and final Freudian stage of development. This occurs from puberty onwards. The genital stage is a time of sexual re-awakening; the source of sexual pleasure now becomes someone outside of the family. Freud believed that unresolved conflicts with parents re-emerge during

adolescence. When resolved, the individual is capable of developing a mature love relationship and functioning independently as an adult.

In-Text Question

The phallic stage is the third Freudian stage of development, which occurs between the ages of ___ and _____

- (a) 1 and 2
- (b) 3 and 6
- (c) 4 and 6
- (d) 5 and 6

In-Text Answer

(b) 3 and 6

4.2 The Psychosocial theory of Erik Erikson

Erik Erikson (1902— 1994) recognized Freud’s contributions but believed that Freud misjudged some important dimensions of human development. For one, according to Erikson (1950, 1968) we develop in psychosocial stages, in contrast to Freud’s psycho-sexual stages. For another, Erikson emphasized developmental change throughout the human life span, whereas Freud argued that our basic personality is shaped in the first five years of life.

In Erikson’s theory, eight psycho-social stages of development unfold as we go through the life span (see figure 2.2).



Figure 4.4: Erik Erikson

Source: <http://institute4learning.com/blog/wp-content/uploads/2012/08/ErikErikson-II.jpg>

Each stage consists of a unique developmental task that confronts individuals with a crisis that must be faced. According to Erikson, this crisis is a turning point of increased vulnerability and enhanced potential. The more an individual resolves the crises successfully, the healthier her or his development will be (Hopkins, 2000). The psycho-social stages are therefore presented in dichotomies:

1. **Trust versus Mistrust:** This is Erikson’s first psycho-social stage, which is experienced in the first year of life. A sense of trust requires a feeling of physical comfort and a minimal amount of fear and apprehension about the future. Trust in

infancy sets the stage for a lifelong expectation that the world will be a good and pleasant place to live.

2. **Autonomy versus Shame and Doubt:** This is Erikson's second stage of development, which occurs in late infancy and toddlerhood (1—3 years). After developing trust in their caregivers, infants begin to discover that their behaviour is their own. They start to assert their sense of independence, or autonomy occurs. They realize their will. If infants are restrained too much or punished too harshly, they are likely to develop a sense of shame and doubt.

3. **Initiative versus Guilt:** This is Erikson's third stage of development, which occurs during the pre-school years. As preschool children encounter a widening social world, they are challenged more than when they were infants. Active, purposeful behaviour is needed to cope with these challenges. Children are asked to assume responsibility for their bodies, their behaviour, their toys, and their pets by developing this sense of responsibility increases initiative.

Uncomfortable guilt feelings may arise; though, if the child is irresponsible and is made to feel too anxious. Erikson has a positive outlook to this stage. He believes that most guilt is quickly compensated for by a sense of accomplishment.

In-Text Question

Erikson's first psycho-social stage is _____?

- (a) Trust versus Mistrust
- (b) Mistrust versus Trust
- (c) Versus Mistrust Trust
- (d) Trust Mistrust Versus

In-Text Answer

- (a) Trust versus Mistrust

4.2.1: 4-5yrs Initiative vs Guilt

Stage three is the **genital-locomotor stage** or play age. From three or four to five or six, the task confronting every child is to learn **initiative** without too much **guilt**.



Figure 4.5: 4-5yrs Initiative vs Guilt

Source: http://www.scholastic.com/parents/sites/default/files/field_asset_image/brother-sister-share-toys.jpg

Initiative means a positive response to the world's challenges, taking on responsibilities, learning new skills, feeling purposeful. Parents can encourage initiative by encouraging children to try out their ideas. We should accept and encourage fantasy, curiosity, and imagination. This is a time for play, not for formal education. The child is now capable, as never before, of imagining a future situation; one that isn't a reality right now.

A good balance leads to the psycho-social strength of **purpose**. A sense of purpose is something many people crave in their lives, yet many do not realize that they themselves make their purposes, through imagination and initiative. I think an even better word for this virtue would have been courage, the capacity for action despite a clear understanding of your limitations and past failings.

In-Text Question

The psycho-social theory aims at a _____?

- a) Strength of purpose
- b) Sense of Purpose
- c) All of the above
- d) One of the above

In-Text Answer

(c) All of the above

4.2.2: 6-12yrs Industry versus Inferiority

Stage four is the **latency stage**, or the school-age child from about six to twelve. The task is to develop a capacity for **industry** while avoiding an excessive sense of **inferiority**. Children must "tame their imagination" and dedicate themselves to education and to learning the social skills their society requires of them.



Figure 4.6: An Inferior child

Source: http://1.bp.blogspot.com/_uXMqgRjz0uI/TCqvP8zd4SI/AAAAAAAAABEM/PI-VJiqsxsQ/s1600/853014_dear_hilary__2.jpg

Too much industry leads to the maladaptive tendency called **narrow virtuosity**. We see this in children who aren't allowed to "be children," the ones that parents or teachers push into one area of competence, without allowing the development of

broader interests. These are the kids without a life: child actors, child athletes, child musicians, child prodigies of all sorts. We all admire their industry, but if we look a little closer, it's all that stands in the way of an empty life.

4.2.3 12-18 yrs – Identify vs Role confusion

Stage five is **adolescence**, beginning with puberty and ending around 18 or 20 years old. The task during adolescence is to achieve **ego identity** and avoid **role confusion**. It was adolescence that interested Erikson first and most, and the patterns he saw here were the bases for his thinking about all the other stages.

Ego identity means knowing who you are and how you fit in to the rest of society. It requires that you take all you've learned about life and yourself and mold it into a unified self-image,

4.2.4 18-30 years Intimacy versus isolation

18-30 years Intimacy versus isolation is Erikson's sixth developmental stage, which individuals experience during the early adulthood years. At this time, individuals face the developmental task of forming intimate relationships with others. Erikson describes intimacy as finding oneself yet losing oneself in another. If the young adult forms healthy friendships and an intimate relationship with another individual, intimacy will be achieved; if not, isolation will result.

4.2.5 Generativity versus stagnation

Generativity versus stagnation is Erikson's seventh developmental stage, which individuals experience during middle adulthood. A chief concern at this stage is to assist the younger generation in developing and leading useful lives- this is what Erikson means by generativity. The feeling of having done nothing to help the next generation is stagnation.

Stage (age)	Psychosocial crisis	Significant relations	Psychosocial modalities	Psychosocial virtues	Maladaptation & malignancies
I (0-1) -- infant	trust vs mistrust	mother	to get, to give in return	hope, faith	sensory distortion -- withdrawal
II (2-3) -- toddler	autonomy vs shame and doubt	parents	to hold on, to let go	will, determination	impulsivity -- compulsion
III (3-6) -- pre-schooler	initiative vs guilt	family	to go after, to play	purpose, courage	ruthlessness -- inhibition
IV (7-12 or so) - school-age child	industry vs inferiority	neighbourhood and school	to complete, to make things together	competence	narrow virtuosity - inertia
V (12-18 or so) - adolescence	ego-identity vs role-confusion	peer groups, role models	to be oneself, to share oneself	fidelity, loyalty	fanaticism -- repudiation
VI (the 20's) -- young adult	intimacy vs isolation	partners, friends	to lose and find oneself in another	love	promiscuity -- exclusivity
VII (late 20's to 50's) -- middle adult	generativity vs self-absorption	household, workmates	to make be, to take care of	care	overextension -- rejectivity
VIII (50's and beyond) -- old adult	integrity vs despair	mankind or "my kind"	to be, through having been, to face not being	wisdom	presumption -- despair

4.3 Piaget's Cognitive developmental theory

Jean Piaget began his career as a biologist but his interest in science and the history of science soon overtook his interest in snails and clams. As he delved deeper into the thought-processes of doing science, he became interested in the nature of thought itself, especially in the development of thinking. Finding relatively little work done in the area, he had the opportunity to give it a label. He called it **genetic epistemology**, meaning the study of the development of knowledge.



Figure 4.7: Jean Piaget

Source: https://upload.wikimedia.org/wikipedia/en/6/67/Jean_Piaget_in_Ann_Arbor.png

For example, an infant knows how to grab his favorite rattle and thrust it into his mouth. This behaviour makes him to do so with other objects. This Piaget called **assimilation**, specifically assimilating a new object into an old schema.

When our infant comes across another object again -- say a pen -- he will try his old schema of grab and thrust. This of course works poorly with the new object. So the schema will adapt to the new object. Perhaps, in this example, "squeeze and drool" would be an appropriate title for the new schema. This is called **accommodation**, specifically accommodating an old schema to a new object.

4.3.1 The Sensorimotor Stage

The first stage, to which we have already referred, is the sensorimotor stage. It lasts from birth to about two years old. As the name implies, the infant uses senses and motor abilities to understand the world, beginning with reflexes and ending with complex combinations of sensorimotor skills.

Between one and four months, the child works on **primary circular reactions** -- just an action of his own which serves as a stimulus to which it responds with the same action, and around and around we go. For example, the baby may suck her thumb. That feels good, so she sucks some more... Or she may blow a bubble. That's interesting so I'll do it again...

Between four and 12 months, the infant turns to **secondary circular reactions**, which involve an act that extends out to the environment. She may squeeze a rubber duckie.

It goes “quack.” That’s great, so do it again, and again, and again. She is learning “procedures that make interesting things last.”

Between 12 months and 24 months, the child works on **tertiary circular reactions**. They consist of the same “making interesting things last” cycle, except with constant variation. I hit the drum with the stick -- rat-tat-tat-tat. I hit the block with the stick -- thump-thump. I hit the table with the stick -- clunk-clunk. I hit daddy with the stick -- ouch-ouch. This kind of active experimentation is best seen during feeding time, when discovering new and interesting ways of throwing your spoon, dish, and food.

4.3.2 Pre-operational stage

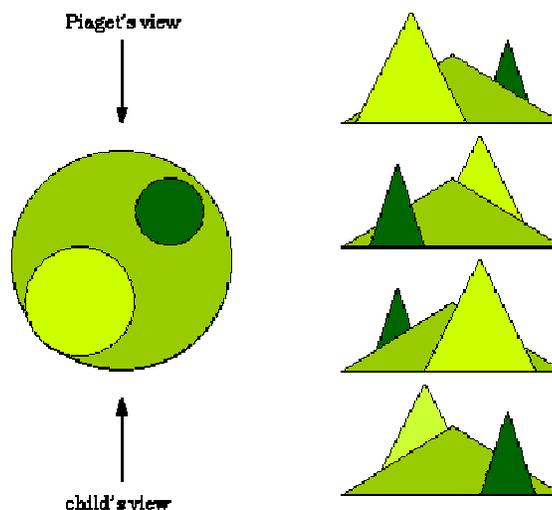
The pre-operational stage lasts from about two to about seven years old. Now that the child has mental representations and is able to pretend, it is a short step to the use of **symbols**.

A symbol is a thing that represents something else. A drawing, a written word, or a spoken word comes to be understood as representing a real dog.

The use of language is, of course, the prime example, but another good example of symbol use is **creative play**, wherein checkers are cookies, papers are dishes, a box is the table, and so on. By manipulating symbols, we are essentially thinking, in a way the infant could not: in the absence of the actual objects involved!

Along with symbolization, there is a clear understanding of past and future. For example, if a child is crying for its mother, and you say “Mommy will be home soon,” it will now tend to stop crying. Or if you ask him, “Remember when you fell down?” he will respond by making a sad face.

Piaget did a study to investigate this phenomenon called the mountains study. He would put children in front of a simple plaster mountain range and sit himself to the side, then ask them to pick from four pictures the view that he, Piaget, would see. Younger children would pick the picture of the view they themselves saw; older kids picked correctly.



Similarly, younger children **centre** on one aspect of any problem or communication at a time. For example, they may not understand you when you tell them “Your father is my husband.” Or they may say things like “I don’t live in the USA; I live in

Pennsylvania!” Or, if you show them five black and three white marbles and ask them “Are there more marbles or more black marbles?” they will respond “More black ones!”

4.3.3 Concrete operations stage

The concrete operations stage lasts from about 7 to about 11. The word **operations** refer to logical operations or principles we use when solving problems. In this stage, the child not only uses symbols representationally, but can manipulate those symbols logically. Quite an accomplishment! But, at this point, they must still perform these operations within the context of concrete situations.

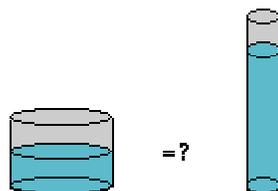
The stage begins with progressive decentering. By six or seven, most children develop the ability to **conserve** number, length, and liquid volume. **Conservation** refers to the idea that a quantity remains the same despite changes in appearance. If you show a child four marbles in a row, then spread them out, the pre-operational child will focus on the spread, and tend to believe that there are now more marbles than before.



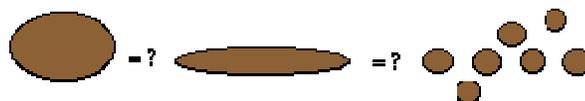
Or if you have two five inch sticks laid parallel to each other, then move one of them a little, she may believe that the moved stick is now longer than the other.



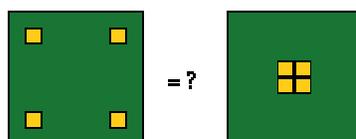
The concrete operations child, on the other hand, will know that there are still four marbles, and that the stick doesn't change length even though it now extends beyond the other. And he will know that you have to look at more than just the height of the milk in the glass: If you pour the milk from the short, fat glass into the tall, thin glass, he will tell you that there is the same amount of milk as before, despite the dramatic increase in milk-level!



By seven or eight years old, children develop conservation of substance: If I take a ball of clay and roll it into a long thin rod, or even split it into ten little pieces, the child knows that there is still the same amount of clay. And he will know that, if you rolled it all back into a single ball, it would look quite the same as it was before -- a feature known as **reversibility**.



By nine or ten, the last of the conservation tests is mastered: conservation of area. If you take four one-inch square pieces of felt, and lay them on a six-by-six cloth together in the centre, the child who conserves will know that they take up just as much room as the same squares spread out in the corners, or, for that matter, anywhere at all.



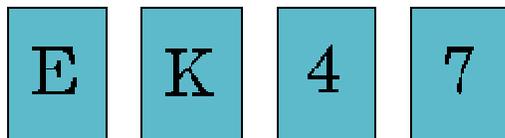
Formal operations stage

But a child at the formal operations stage has a hard time applying his new-found logical abilities to non-concrete -- i.e. abstract -- events. If mom says to junior “You shouldn’t make fun of that boy’s nose. How would you feel if someone did that to you?” he is likely to respond “I don’t have a big nose!” Even this simple lesson may well be too abstract, too hypothetical, for his kind of thinking.

From around 12 on, a child enters the formal operations stage. Here the child becomes increasingly competent at adult-style thinking. This involves using logical operations, and using them in the abstract, rather than the concrete. We often call this

hypothetical thinking.

Here’s a simple example of a task that a concrete operations child couldn’t do, but which a formal operations teenager or adult could -- with a little time and effort. Consider this rule about a set of cards that have letters on one side and numbers on the other: “If a card has a vowel on one side, then it has an even number on the other side.” Take a look at the cards below and tell me, which cards do I need to turn over to tell if this rule is actually true? You’ll find the answer at the end of this chapter.



It is the formal operations stage that allows one to investigate a problem in a careful and systematic fashion. Ask a 16 year old to tell you the rules for making pendulums swing quickly or slowly, and he may proceed like this:

- 1) A long string with a light weight -- let’s see how fast that swings.
- 2) A long string with a heavy weight -- let’s try that.
- 3) Now, a short string with a light weight.
- 4) And finally, a short string with a heavy weight.

His experiment -- and it is an experiment -- would tell him that a short string leads to a fast swing, and a long string to a slow swing, and that the weight of the pendulum means nothing at all!

The teenager has learned to group possibilities in four different ways:

By **conjunction**: “Both A and B make a difference” (e.g. both the string’s length and the pendulum’s weight).

By **disjunction**: “It’s either this or that” (e.g. it’s either the length or the weight).

By **implication**: “If it’s this, then that will happen” (the formation of a hypothesis).

By **incompatibility**: “When this happens, that doesn’t” (the elimination of a hypothesis).

On top of that, he can operate on the operations -- a higher level of grouping. If you have a proposition, such as “it could be the string or the weight,” you can do four things with it:

Identity: Leave it alone. “It could be the string or the weight.”

Negation: Negate the components and replace or’s with and’s (and vice versa). “It might not be the string and not the weight, either.”

Reciprocity: Negate the components but keep the and’s and or’s as they are. “Either it is not the weight or it is not the string.”

Correlativity: Keep the components as they are, but replace or’s with and’s, etc. “It’s the weight and the string.”

Someone who has developed his or her formal operations will understand that the correlate of a reciprocal is a negation, that a reciprocal of a negation is a correlate, that the negation of a correlate is a reciprocal, and that the negation of a reciprocal of a correlate is an identity.

Summary of Study Session 4

In this study you have learnt about:

- 1) The Sigmund Freud’s Psycho-analytic theory
- 2) Erik Erikson’s Psycho-social theory
- 3) Jean Piaget’s cognitive developmental theory.

Self-Assessment Questions SAQs for Study Session 4

Now that you have completed this study session, you can assess how well you have achieved its Learning outcomes by answering the following questions. Write your answers in your study diary and discuss them with your Tutor at the next study Support Meeting. You can check your answers with the Notes on the Self-Assessment questions at the end of this Module.

SAQ 1.1 (Testing Learning outcomes 4.1)

Write short notesPsychoanalytic theory

SAQ 1.1 (Testing Learning outcomes 4.2)

Write short notespsychosocial theory

SAQ 1.1 (Testing Learning outcomes 4.3)

Write short notesPiaget’s Cognitive developmental theory

Notes on SAQs for Study Session 4

SAQ 1

Sigmund Freud (1856—1939) developed his ideas about psychoanalytic theory from work with mental patients. He was a medical doctor who specialized in neurology. He spent most of his years in Vienna, though he moved to London near the end of his career because of the Nazis' anti-Semitism. **Freud** (1917) believed that personality has three structures: the id, the ego, and the superego.

SAQ 2

Erik Erikson (1902— 1994) recognized Freud's contributions but believed that Freud misjudged some important dimensions of human development. For one, according to Erikson (1950, 1968) we develop in psychosocial stages, in contrast to Freud's psycho-sexual stages. For another, Erikson emphasized developmental change throughout the human life span, whereas Freud argued that our basic personality is shaped in the first five years of life.

SAQ 3

Jean Piaget began his career as a biologist but his interest in science and the history of science soon overtook his interest in snails and clams. As he delved deeper into the thought-processes of doing science, he became interested in the nature of thought itself, especially in the development of thinking. Finding relatively little work done in the area, he had the opportunity to give it a label. He called it **genetic epistemology**, meaning the study of the development of knowledge.

Study Session 5 Principles of Human Growth and Development

Expected duration: 1 week or 2 contact hour

Introduction

There is a set of principles that underpins 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 of development have universal patterns. During this study, you should learn about the Principles of Human Growth and Development.

Learning outcomes for Study Session 5

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

- 5.1 Discuss the principles of Development
- 5.2 Discuss an Overview of Physical Growth
- 5.3 Discuss overview of Development

5.1 Principles of Development

Human development is the process of growing to maturity. In biological terms, this entails growth from a one-celled zygote to an adult human being. The following are the principles of Development:

5.1.1 Development proceeds from the head downward

This is called the **cephalocaudal principle**. This principle describes the direction of growth and development. According to this principle, the child gains control of the head first, then the arms, and then the 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 leg control and may be able to crawl, stand, or walk. Coordination of arms always precedes coordination of legs.

5.1.2 Development proceeds from the centre of the body outward

This is the principle of proximodistal development that 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 the hands and feet develop before the fingers and toes. Fingers and toes muscles (used in fine motor dexterity) are the last to develop in physical development.

In-Text Question

Development proceeding from the head downward is called the cephalocaudal principle, TRUE/FALSE _____?

In-Text Answer

TRUE

5.1.3 Development depends on maturation and learning

Maturation refers to the sequential characteristic of biological growth and development. The biological changes occur in sequential order and give children new abilities. Changes in the brain and nervous system account largely for maturation. These changes in the brain and nervous system help children to improve in thinking (cognitive) and motor (physical) skills.

Also, children must be mature to a certain level before they can progress to new skills (Readiness). For example, a four-month-old cannot use language because the infant's brain is not mature enough to allow the child to talk. By two years old, the brain has developed further and with help from others, the child will have the capacity to say and understand words.



Figure 5.1: Maturation and Learning

Source: <http://www.claremontpractice.co.za/images/school-readiness3.jpg>

Also, a child can't 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 to his or her full potential.

5.1.4 Development proceeds from the simple (concrete) to the more complex

Children use their cognitive and language skills to reason and solve problems. For example, learning relationships between things (how things are similar), or classification, is an important ability in cognitive development. The cognitive process of learning how an apple and orange are alike begins with the most simplistic or concrete thought of describing the two.



Figure 5.2: Apple and Orange

Source: <https://thenewtag.files.wordpress.com/2010/10/apples-to-oranges.jpg>

Seeing no relationship, a pre-school child will describe the objects according to some property of the object, such as colour. Such a response would be, "An apple is red (or green) and an orange is orange." The first level of thinking about how objects are alike is to give a description or functional relationship (both concrete thoughts) between the two objects.

"An apple and orange are round" and "An apple and orange are alike because you eat them" are typical responses of three, four and five year olds. As children develop further in cognitive skills, they are able to understand a higher and more complex relationships between objects and things; that is, that an apple and orange belong to the class of fruits. The child cognitively is then capable of classification.

5.1.5 Growth and development 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 skills. Most children follow a similar pattern. Also, one stage of development lays the foundation for the next stage of development. For example, in motor development, there is a predictable sequence of developments that occur before walking.



Figure 5.3: A child's Motor development

Source: <http://babiesideas.net/wp-content/uploads/2015/12/baby-stages-of-walking.jpg>

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 something 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.

5.1.6 Growth and development proceed from the general to specific

In motor development, the infant will be able to grasp an object with the whole hand before using only the thumb and forefinger. The infant's first motor movements are very generalized, undirected, and reflexive, waving arms or kicking before being able to reach or creep towards an object. Growth occurs from large muscle movements to more refined (smaller) muscle movements.

In-Text Question

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 skills, TRUE/FALSE _____?

In-Text Answer

TRUE

5.1.7 There are individual rates of growth and development

Each child is different and the rates at which individual children grow is different. Although the patterns and sequences for growth and development are usually the same for all children, the rates at which individual children reach developmental stages will be different.

Understanding this fact of individual differences in rates of development should cause us to be careful about using and relying on age and stage characteristics to describe or label children. There is a range of ages for any developmental task to take place. This dismisses the notion of the "average child". Some children will walk at ten months while others walk a few months older at eighteen months of age.



Figure 5.4: 18 months child

Source: <http://www.talkingpoint.org.uk/sites/talkingpoint.org.uk/files/images/12-18%20month%20child.jpeg>

Some children are more active while others are more passive. This does not mean that the passive child will be less intelligent as an adult. There is no validity to comparing one child's progress with or against another child. The rates of development of certain personal characteristics of a given child also are not uniform. For example, a child's intellectual development may progress faster than his emotional or social development.

An understanding of the principles of development helps us to plan appropriate activities as well as stimulating and enriching experiences for our children. The knowledge also provides a basis for understanding how to encourage and support young children's learning.

5.2 An Overview of Physical Growth

Understanding the growth and development of the human organism requires an understanding of nature and nurture, and the complex interplay between the two.

Growth

Implies a physical change, usually resulting from either an increase in cell number or cell size

Development

A change or modification in a person's capacity to function; the enhancement of a skill

Age-related norms for growth and development must be interpreted in context. The PATTERN of growth and development is much more important than the particular size of a child or the particular collection of developmental skills the child may possess at any given point in time. Growth in young people occurs in the following pattern:

- 1) Relatively rapid growth during infancy with a gradual deceleration until about the fourth year of life
- 2) A slow but uniform period of growth until puberty
- 3) A prominent adolescent growth spurt

- 4) A relatively gradual decrease in the rate of growth until completion of maturity, usually after age 20.

The difference in the size of adults between populations depends on differences in the gene pools of those populations as well as differences in environmental factors. There are differences in the size of Asians when compared to Caucasians, for example. However, Asians who grow up in the United States are generally taller and larger than Asians who grow up in Asia.

Thus, genetic differences that may exist between these two populations can be mitigated by environmental factors.

5.2.1 Factors which affect growth are

Genetic factors

Maternal illnesses during pregnancy: Diabetes, endocrine diseases, diseases which affect placental sufficiency, etc., can affect foetal growth, even when these illnesses are adequately treated.

Maternal and family socio-economic disadvantages during and after pregnancy: Poor nutrition, lack of access to prenatal care, poor education, and inadequate treatment of maternal illnesses can affect maternal health. These factors thus also affect the size of the new-born, and usually continue to affect the size of the child after birth.

Maternal and family social/emotional problems during childhood: These factors, which may have affected the size of the new-born, can have an on-going effect on the infant/child's growth. Examples include poor nutrition and environmental or emotional deprivation. Emotional deprivation alone, or the absence of a stimulating environment, even in the presence of adequate nutrition, can result in growth failure.

Notable examples of this occur in eastern European orphanages, where staff shortages result in minimal stimulation for the infants and children cared for at the orphanage.

Statistically speaking, the most important factor affecting a child's growth is her size at birth, and the factors that contributed to this. These factors tend to persist, and thus have an on-going effect on growth.

5.2.2 Adolescent physical growth and development

Physiologically speaking, adolescence emerges as early as age 8 (girls) or 9 (boys), and as late as 14 in boys and girls. The two major events occurring during this time are a rapid increase in height and weight, and the development of sexual characteristics.

Tanner staging is a method of evaluating the sexual maturity of an adolescent, and is based upon the appearance of secondary sexual characteristics (breast development in girls, penis and testicular development in boys, and pubic hair development in both). Sexual maturity is complete by the end of the teenage years.

In-Text Question

Statistically speaking, the most important factor affecting a child's growth is her size at birth, and the factors that contributed to this, TRUE/FALSE _____?

In-Text Answer

TRUE

5.3 Overview of Development

Brain Growth and Development:

Nearly one half of the brain's postnatal growth is achieved by the end of the first year, as witnessed by the impressive increase in head circumference. The enormous increase in head size is primarily accounted for by growth of the cerebral cortex. New cortical cells are added (neurons as well as dendritic cells), more connecting links are created, and cells become larger.

Myelination of brain cells (development of a sheath around each brain cell) is an important reason for the increase in head size as well. As different parts of the nervous system undergo myelination, the infant/toddler is capable of increasingly complex motor, verbal, and cognitive functions. The pattern of myelination results in a very predictable pattern of motor development:

- 1) Cephalad to caudal (head to tail)
- 2) Proximal to distal (from thorax to periphery)
- 3) Development in spheres other than the motor sphere is also predictable, but is not as clearly associated with myelination patterns.

Development is divided into four major areas:

- 1) Motor
- 2) Speech/language
- 3) Cognitive
- 4) Social/emotional

Summary of Study Session 5

At the end of this study session, you have learnt about:

9. The principles of Development:
 - a) Development proceeds from the head downward
 - b) Development proceeds from the centre of the body outward
 - c) Development depends on maturation and learning
 - d) Development proceeds from the simple (concrete) to the more complex
 - e) Growth and development is a continuous process
 - f) Growth and development proceed from the general to specific
 - g) There are individual rates of growth and development
10. An overview of Physical Growth
11. An overview of Development

Self-Assessment Questions for Study Session 5

Now that you have completed this study session, you can assess how well you have achieved its Learning outcomes by answering the following questions. Write your answers in your study diary and discuss them with your Tutor at the next study Support Meeting. You can check your answers with the Notes on the Self-Assessment questions at the end of this Module.

SAQ 1 (Testing Learning outcomes 5.1)

Discuss the principles of human growth and development

SAQ 2 (Testing Learning outcomes 5.2)

Discuss an Overview of Physical Growth

SAQ 3 (Testing Learning outcomes 5.3)

Discuss overview of Development

Notes on SAQs for Study Session 5

SAQ 1

Development proceeds from the head downward

This is called the cephalocaudal principle. This principle describes the direction of growth and development. According to this principle, the child gains control of the head first, then the arms, and then the 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 leg control 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 that 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 the hands and feet develop before the fingers and toes. Fingers and toes muscles (used in fine motor dexterity) are the last to develop in physical development.

Maturation refers to the sequential characteristic of biological growth and development. The biological changes occur in sequential order and give children new abilities. Changes in the brain and nervous system account largely for maturation. These changes in the brain and nervous system help children to improve in thinking (cognitive) and motor (physical) skills.

Also, children must be mature to a certain level before they can progress to new skills (Readiness). For example, a four-month-old cannot use language because the infant's brain is not mature enough to allow the child to talk. By two years old, the brain has developed further and with help from others, the child will have the capacity to say and understand words.

Also, a child can't 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 to his or her full potential.

Development proceeds from the simple (concrete) to the more complex

Children use their cognitive and language skills to reason and solve problems. For example, learning relationships between things (how things are similar), or classification, is an important ability in cognitive development. The cognitive process of learning how an apple and orange are alike begins with the most simplistic or concrete thought of describing the two.

Seeing no relationship, a pre-school child will describe the objects according to some property of the object, such as colour. Such a response would be, "An apple is red (or green) and an orange is orange." The first level of thinking about how objects are alike

is to give a description or functional relationship (both concrete thoughts) between the two objects.

Growth and development 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 skills. Most children follow a similar pattern. Also, one stage of development lays the foundation for the next stage of development. For example, in motor development, there is a predictable sequence of developments 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 something 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.

Growth and development proceed from the general to specific

In motor development, the infant will be able to grasp an object with the whole hand before using only the thumb and forefinger. The infant's first motor movements are very generalized, undirected, and reflexive, waving arms or kicking before being able to reach or creep towards an object. Growth 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 rates at which individual children grow is different. Although the patterns and sequences for growth and development are usually the same for all children, the rates at which individual children reach developmental stages will be different.

SAQ 2

Understanding the growth and development of the human organism requires an understanding of nature and nurture, and the complex interplay between the two.

Growth

Implies a physical change, usually resulting from either an increase in cell number or cell size

Development

A change or modification in a person's capacity to function; the enhancement of a skill

Age-related norms for growth and development must be interpreted in context. The PATTERN of growth and development is much more important than the particular size of a child or the particular collection of developmental skills the child may possess at any given point in time. Growth in young people occurs in the following pattern:

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SAQ 3

Brain Growth and Development:

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Myelination of brain cells (development of a sheath around each brain cell) is an important reason for the increase in head size as well. As different parts of the nervous system undergo myelination, the infant/toddler is capable of increasingly complex motor, verbal, and cognitive functions. The pattern of myelination results in a very predictable pattern of motor development:

- 1) Cephalad to caudal (head to tail)
- 2) Proximal to distal (from thorax to periphery)
- 3) Development in spheres other than the motor sphere is also predictable, but is not as clearly associated with myelinization patterns.

Study Session 6 Biological Beginnings of Human Development

Expected duration: 1 week or 2 contact hour



Biological Beginnings of Human
Development (What man looks like in its

Source: <http://www.growingyourbaby.com/wp-content/uploads/10-week-fetus-in-the-womb.jpg>

Introduction

Advanced modern science offer the students the ability to actively engage their thoughts on the interval where invisible transformation takes place between two visible phenomena, since only isolated phenomena can be found during pregnancy examinations or after miscarriages. Continuous development as it is described in textbooks cannot be directly observed.

This is the result of an activity an invisible transformation, or metamorphosis in the interval between two visible forms. Films that show this continuous development are attempts to make the transformation graphically clear. However, it always remains invisible and can only be comprehended through the activity of thought.

It is just this activity of thought that is new. It has only been possible for about one hundred years, since the end of the 19th century. It assumes the modern ability to transcend with consciousness the threshold between that which can be perceived by the senses and that which is extra-sensory. In this study session you should learn about Biological Beginnings of Human Development.

Learning outcomes for Study Session 5

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

- 6.1 Identify various basic stages of human development from conception to birth;
and
- 6.2 Discuss those basic stages so identified.

6.1 The fertilisation process

Fertilization is the process in which gametes a male's sperm and a female's egg or ovum fuse together, producing a single cell that develops into an adult organism. Fertilization is a precise period in the reproductive process. It begins when the sperm contacts the outer surface of the egg and it ends when the sperm's nucleus fuses with the egg's nucleus. Fertilization is not instantaneous—it may take up to several hours in humans.

6.1.1 Release of the egg

First, once a month, between the last and next menstruation, in the middle of the menstrual cycle, a rhythmic temperature rise occurs in the mother-organism. Within this warmth of ovulation, an egg cell is released along with its surrounding follicle. The last phase of egg cell maturation begins outside of the ovary. The released egg cell is received by one of the fallopian tubes and is moved further along towards the uterus by its peristaltic action.

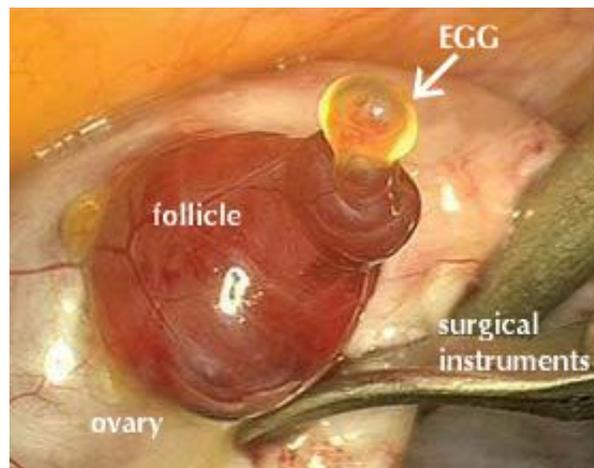


Figure 6.1: The release of Human Egg

Source: <http://mamabumbleabee.theblogpress.com/files/2012/10/eggpic.jpg>

The egg cell somewhat becomes cool in this process. Spermatozoa in the semen come toward the egg cell. Their path goes from the vagina in the direction of the uterus. Sperm come from the outside, from a cooler temperature, and warm themselves along the way.

That is the first step of fertilization, and it takes place before the two cells come into contact with each other. The undifferentiated, warm, chaotic state of the egg cell is differentiated and cooled by the sperm. Within the meeting of these two genetic streams, a warmth organism is formed. The polarities of one-sided and extreme cold and warmth are overcome.

6.1.2 Fertilisation

The second step is the meeting of the gametes or reproductive cells. The egg cell is surrounded by thousands of sperm and in this moment a rhythmic rotation begins that lasts approximately thirty-six hours. A biochemical glow begins. There is still no

penetration by a spermatozoon, but a light-organism has formed accompanied by ordered and harmonious movement. This is the second step of fertilization. Now, the individuality of the child has overcome the cloudy and inert state of the egg cell and the transparent, self-powered disordered-movement state of the spermatozoa and has again developed a light/movement organism out of the balance.

In-Text Question

Fertilization is the process in which gametes—a male's sperm and a female's egg or ovum—fuse together, producing a single cell that develops into an adult organism, TRUE/FALSE?

In-Text Answer

TRUE

6.1.3 Meiosis and mitosis

The third step is what is traditionally known as actual fertilization, but is, in fact, the third process. A spermatozoon penetrates the egg cell, and its outer membrane chemically isolates itself from the mother-organism.

The first immunity processes begin. The other sperms die and dissolve. The egg cell goes through its last maturing by a process of further undifferentiating and chaos and by secretion of the so-called polar body, a concentrate of hardened cell material that is incapable of life.

In-Text Question

A spermatozoon penetrates the egg cell at _____ stage, and its outer membrane chemically isolates itself from the mother-organism.

- (a) First stage
- (b) Second stage
- (c) Third stage
- (d) Fourth stage

In-Text Answer

(c) Third stage

A rejuvenation of the egg cell occurs in this moment of intense activity between the egg cell and the differentiating determinations of the spermatozoon. The spermatozoon loses its crystalline structure, swells up, expands, and then dissolves in the plasma of the impregnated cell.

An egg has now been formed a biological and genetically complete cell. This cell then divides for the first time (mitosis), and other divisions rhythmically follow. There is not yet any growth, merely cell divisions in geometric progression one becomes two, then four, eight, sixteen, thirty-two, and so on. The morula is formed while still inside the fallopian tube (like a little mulberry or raspberry).

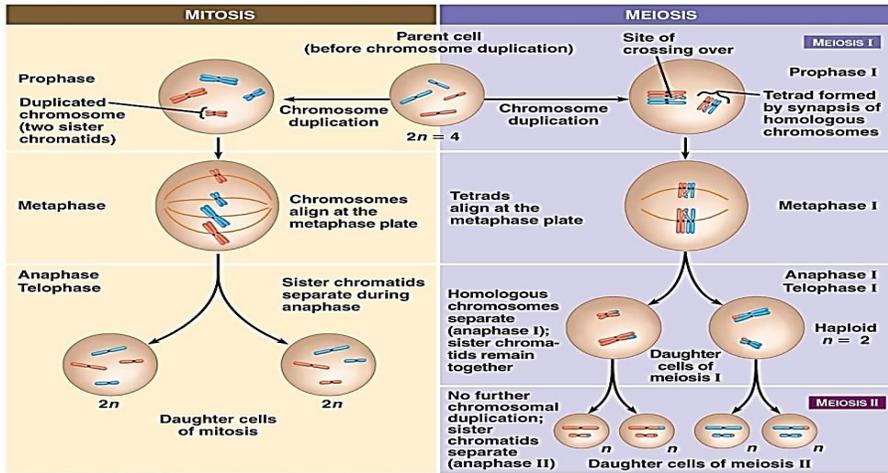


Figure 6.3: Meiosis and mitosis

Source: <https://sandybiology1-2.wikispaces.com/file/view/Mitosis+v+Meiosis.jpg>

This organism does not glow and has no power of movement itself. The entire activity is now chemical-biological and has relocated to the inner, light organism. The organism has overcome the polarities of potential chaos. A crystal forms and builds a chemical organism out of the balance, a new deed of the individuality.

6.1.4 Implantation

The fourth step of fertilization is implantation into the mucous membrane of the uterus that has built up in the two weeks after menstruation and reached a high point in its development around the time of ovulation. Without fertilization (and the beginning of pregnancy), the mucous membrane would again deteriorate, and the dead tissue would be expelled with the next menstruation.



Figure 6.4: 1-2-weeks-fetus_3-4-week-pregnancy

Source: http://www.naturalbirthandbabycare.com/wp-content/uploads/2013/01/7-8-week-old-fetus_9-10-week-pregnancy.jpg

With the implantation, which is an activity of the child, the built-up state of the mucous membrane and the hormone situation maintains itself until birth. The morula is still inside the fallopian tube (right or left) and then goes out so that it can fall into the uterus between the fifth and seventh days after conception.

After the fusion of the cell membranes, the sperm is motionless. The egg extends cytoplasmic fingers to surround the sperm and pulls it into the egg's cytoplasm. Filaments called microtubules begin to grow from the inner surface of the egg cell's membrane inward towards the cell's centre, resembling spokes of a bicycle wheel growing from the rim inward towards the wheel's hub. As the microtubules grow, the sperm and egg nuclei are pushed towards the egg's centre.

Finally, in a process that is also poorly understood, the egg and sperm nuclear envelopes (outer membranes) fuse, permitting the chromosomes from the egg and sperm to mix within a common space. A zygote is formed, and development of an embryo begins.

With implantation a geographic location is chosen. A physical organism is formed that takes part in the laws of weight and lightness and the dimensions of space. Also, implantation which is the last step of fertilization is simultaneously the first phase of formation of the amnion.

Summary of Study Session 6

At the end of this study session, you have learnt that:

- 1) Fertilization is the process in which gametes—a male's sperm and a female's egg or ovum—fuse together, producing a single cell that develops into an adult organism. Fertilization is a precise period in the reproductive process. It begins when the sperm contacts the outer surface of the egg and it ends when the sperm's nucleus fuses with the egg's nucleus. Fertilization is not instantaneous—it may take up to several hours in humans.
- 2) The fertilisation process involves four stages:
 - a) Release of the egg
 - b) Fertilisation
 - c) Meiosis and mitosis
 - d) Implantation

Self-Assessment Questions for Study Session 6

Now that you have completed this study session, you can assess how well you have achieved its Learning outcomes by answering the following questions. Write your answers in your study diary and discuss them with your Tutor at the next study Support Meeting. You can check your answers with the Notes on the Self-Assessment questions at the end of this Module.

SAQ 1 (Testing Learning outcomes 6.1)

Identify various basic stages of human development from conception to birth;

SAQ 2 (Testing Learning outcomes 6.2)

Discuss those basic stages so identified.

Notes on SAQs for Study Session 6

SAQ 1

Fertilization is the process in which gametes—a male's sperm and a female's egg or ovum—fuse together, producing a single cell that develops into an adult organism. Fertilization is a precise period in the reproductive process. It begins when the sperm contacts the outer surface of the egg and it ends when the sperm's nucleus fuses with the egg's nucleus. Fertilization is not instantaneous—it may take up to several hours in humans.

SAQ 2

The fertilisation process includes the following:

Release of the egg

First, once a month, between the last and next menstruation, in the middle of the menstrual cycle, a rhythmic temperature rise occurs in the mother-organism. Within this warmth of ovulation, an egg cell is released along with its surrounding follicle. The last phase of egg cell maturation begins outside of the ovary. The released egg cell is received by one of the fallopian tubes and is moved further along towards the uterus by its peristaltic action.

The egg cell somewhat becomes cool in this process. Spermatozoa in the semen come toward the egg cell. Their path goes from the vagina in the direction of the uterus. Sperm come from the outside, from a cooler temperature, and warm themselves along the way.

That is the first step of fertilization, and it takes place before the two cells come into contact with each other. The undifferentiated, warm, chaotic state of the egg cell is differentiated and cooled by the sperm. Within the meeting of these two genetic streams, a warmth organism is formed. The polarities of one-sided and extreme cold and warmth are overcome.

Fertilisation

The second step is the meeting of the gametes or reproductive cells. The egg cell is surrounded by thousands of sperm and in this moment a rhythmic rotation begins that lasts approximately thirty-six hours. A bio-chemical glow begins. There is still no penetration by a spermatozoon, but a light-organism has formed accompanied by ordered and harmonious movement. This is the second step of fertilization.

Now, the individuality of the child has overcome the cloudy and inert state of the egg cell and the transparent, self-powered disordered-movement state of the spermatozoa and has again developed a light/movement organism out of the balance.

Meiosis and mitosis

The third step is what is traditionally known as actual fertilization, but is, in fact, the third process. A spermatozoon penetrates the egg cell, and its outer membrane chemically isolates itself from the mother-organism.

The first immunity processes begin. The other sperms die and dissolve. The egg cell goes through its last maturing by a process of further undifferentiating and chaos and by secretion of the so-called polar body, a concentrate of hardened cell material that is incapable of life.

A rejuvenation of the egg cell occurs in this moment of intense activity between the egg cell and the differentiating determinations of the spermatozoon. The

spermatozoon loses its crystalline structure, swells up, expands, and then dissolves in the plasma of the impregnated cell.

An egg has now been formed—a biological and genetically complete cell. This cell then divides for the first time (mitosis), and other divisions rhythmically follow. There is not yet any growth, merely cell divisions in geometric progression—one becomes two, then four, eight, sixteen, thirty-two, and so on. The morula is formed while still inside the fallopian tube (like a little mulberry or raspberry).

This organism does not glow and has no power of movement itself. The entire activity is now chemical-biological and has relocated to the inner, light organism. The organism has overcome the polarities of potential chaos. A crystal forms and builds a chemical organism out of the balance, a new deed of the individuality.

Implantation

The fourth step of fertilization is implantation into the mucous membrane of the uterus that has built up in the two weeks after menstruation and reached a high point in its development around the time of ovulation. Without fertilization (and the beginning of pregnancy), the mucous membrane would again deteriorate, and the dead tissue would be expelled with the next menstruation.

With the implantation, which is an activity of the child, the built-up state of the mucous membrane and the hormone situation maintains itself until birth. The morula is still inside the fallopian tube (right or left) and then goes out so that it can fall into the uterus between the fifth and seventh days after conception.

Study Session 7: Pre-Natal Development and Birth

Expected duration: 1 week or 2 contact hour

Pre-Natal Development (Growth in the womb) and Birth (Growth after birth)



Source: <https://s-media-cache-ak0.pinimg.com/736x/66/e0/be/66e0be78dc5195b7adbfc132cb631f96.jpg>

Introduction

This study session presents a detailed overview of human development from the time the sperm is united with the ovum until birth. Pre-natal development is divided into three trimesters. During the first two months, the developing human is referred to as an embryo. The embryo has three layers from which all body organs develop. During the second trimester, the developing human is referred to as a foetus. During the third trimester, the individual is a baby which, if born prematurely, could survive with extra support. Premature births prior to the third trimester are less likely to survive, even with extraordinary medical care in a neo-natal intensive care unit.

Learning outcomes for Study Session 7

At the end of this study session you should be able to:

- 7.1 Identify various stages of pre-natal development within the 9 months
- 7.2 Identify the birthing or delivery process
- 7.3 Describe various complications during the delivery process

7.1 Pre-Natal Development

In human development, a **fetus** also called **foetus**, is a prenatal human between its embryonic state and its birth. The fetal stage of development tends to be taken as beginning at the gestational age of eleven weeks, i.e. nine weeks after fertilization. In biological terms, however, prenatal development is a continuum, with no clear defining feature distinguishing an embryo from a fetus.

The use of the term "fetus" generally implies that an embryo has developed to the point of being recognizable as a human; this is the point usually taken to be the ninth week after fertilization. A fetus is also characterized by the presence of all the major body organs, though they will not yet be fully developed and functional and some not yet situated in their final anatomical location.

Fetal Growth From 8 to 40 Weeks



Figure 7.1: Pre-Natal Development

Source: <http://www.hopkinsmedicine.org/healthlibrary/GetImage.aspx?ImageId=237826>

Prenatal or **antenatal development** is the process in which a human embryo or fetus (or foetus) gestates during pregnancy, from fertilization until birth. Often, the terms fetal development, foetal development, or embryology are used in a similar sense.

7.1.1 Three stages of prenatal physical development

First Trimester

First Month

Fertilization is the descent of ovum from the fallopian tube to the uterus. It entails early cell division and formation of embryonic disc from which new organism will develop. Early formation of three layers of cells:

- i. The ectoderm, from which sense organs and nervous system will develop;
- ii. The mesoderm, from which circulatory, skeletal and muscular systems will develop;
and
- iii. The endoderm, from which digestive and some glandular systems will develop.

Special layer of cells formed in the uterus which will become the placenta and through which nutritive substances will be carried to the new organism and waste products carried away. Special layer of cells forms the amnion or water-sac, which will surround the developing embryo except at umbilical cord.

Heart tube forms and begins to pulsate and force blood to circulate through blood vessels in embryonic disc. Nervous system begins to arise, first in form of neural groove. Development of intestinal tract, lungs, liver and kidneys begins. By end of one month, the embryo is about one-fourth inch long, curled into a crescent, with small nubbins on sides of body indicating incipient arms and legs.

Second Month

Embryo increases in size to about 1½ inches. Bones and muscle begin to round out contours of body. Face and neck develop and begin to give features of a human being. Forehead is very prominent, reflecting precocious development of brain in comparison to the rest of the body. Limb buds elongate; muscles and cartilage develop, and sex organs begin to form.

Third Month

Beginning with the foetal period, sexual differentiation continues, with male sexual organs showing more rapid development and the female remaining more neutral. Buds for all 20 temporary teeth are laid down. Vocal cords appear; digestive system shows activity. Stomach cells begin to secrete fluid; liver pours bile into intestine. Kidneys begin functioning, with urine gradually seeping into amniotic fluid. Other waste products are passed through placenta into mother's blood. Bones and muscles continue development, and by end of the third month, spontaneous movements of arms, legs, shoulders and fingers are possible.

Second Trimester

Fourth Month

Lower parts of body show relatively accelerated rate, so that head size decreases from one-half to one-fourth of body size. Back straightens; hands and feet are well-formed. Skin appears dark red, owing to coursing of blood, which shows through thin skin, and there are 1 wrinkles, owing to absence of underlying fat. Finger closure is possible. Reflexes become more active as muscular maturation continues. Foetus begins to stir and so thrust out arms and legs in movements readily perceived by the mother.

Fifth Month

Skin structures begin to attain final form. Sweat and sebaceous glands are formed and they start functioning. Skin derivatives also appear -- hair, nails on fingers and toes. Bony axis becomes quite straight and much spontaneous activity occurs. Foetus is lean and wrinkled, about one foot long and weighs about one pound.

Sixth Month

Eyelids, which have been fused shut since third month, reopen; eyes are completely formed. Taste buds appear on tongue and in mouth and are, in fact, more abundant than in the infant or adult.

Third Trimester

Seventh Month

Organism is capable of independent life from this time on. Cerebral hemispheres cover almost the entire brain. Seven-month foetus can emit a variety of specialized responses. Generally it is about 15 inches long and weighs about three pounds.

Eighth and Ninth Month

During this time, finishing touches are being put on the various organs and functional capacities. Fat is formed rapidly over the entire body, smoothing out the wrinkled skin and rounding out body contours.

Dull red colour of skin fades so that a faint pigmentation of skin is usually very slight in all races. Activity is usually great and he can change his position within the somewhat crowded uterus. Periods of activity will alternate with periods of quiescence.

Foetal organs step up their activity. Foetal heart rate becomes quite rapid. Digestive organs continue to expel more waste products, leading to the formation of a foetal stool, called the meconium, which is expelled shortly after birth. Violent uterine contractions begin, though milder ones have been tolerated earlier, and the foetus is eventually expelled from the womb into an independent physiological existence

In-Text Question

Embryo increases in size to about 1½ inches in _____ month?

- (a) First month
- (b) Second month
- (c) Third month
- (d) Four month

In-Text Answer

(b) Second month

7.2 The Birthing Process

The time leading up to the normal birthing process is generally 266 days (38 weeks) – from conception to birth. However, only about 5% of births occur on the actual due date.

7.2.1 The four stages of Labour

- ✚ Stage 1 - from the outset of labour to full cervix dilation
- ✚ Stage 2 - from full cervix dilation to delivery of baby
- ✚ Stage 3 - from delivery of baby to expulsion of placenta
- ✚ Stage 4 - from expulsion of placenta to afterbirth recovery

STAGE 1: Labour Outset to Full Cervix Dilation

Stage 1 consists of regular uterine contractions with cervix dilation. Full cervix dilation occurs at approximately 4 inches. The length of this stage varies from one mother to another.

It depends on many factors including but not limited to previous pregnancies, the health and condition of the mother and foetus, patience of the doctor (or midwife) and willingness to induce labour, medications used at this stage, hospital versus home birth, etc.

STAGE 2: Full Cervix Dilation to Delivery of Baby

Stage 2 generally takes from 15 to 50 minutes. During this time, uterine contractions strengthen and become more frequent. During this stage, mother will feel the need to bear down and push. The baby goes through a series of passive movements - especially the head, which undergoes flexion, internal rotation, extension, external rotation, and crowning (the first sign of the baby's head).

STAGE 3: Delivery of Baby to Expulsion of Placenta

This stage consists of the period immediately following birth to the expulsion of the placenta. This generally takes 5 to 10 minutes. Should the placenta fail to come out easily, tugging or pulling should not be performed. Gentle uterine massage may be utilized to assist in the release. The placenta should always be examined to be sure no parts remain within the uterus. This can become detrimental to the mother causing haemorrhage and/or death.

STAGE 4: Expulsion of Placenta to Afterbirth Recovery

During this stage, mother is monitored to be sure no uterine bleeding or other complications occur.

In-Text Question

One of the following is wrong:

- a. Stage 1 - from the outset of labour to full cervix dilation
- b. Stage 2 - from full cervical dilation to delivery of baby
- c. Stage 3 - from delivery of baby to expulsion of placenta
- d. Stage 4 - from expulsion of placenta to afterbirth recovery

In-Text Answer

b. Stage 2 - from full cervical dilation to delivery of baby

7.3 Complications during the Birthing Process

The following are the complications which occur during the Birthing Process:

7.3.1 Insufficient Power

Sufficient power and coordinated contractions are essential for a smooth uncomplicated labour. When the power of the contractions is weak, or the pattern of contractions disorganized, the mother is more likely to become exhausted. This can cause foetal distress resulting in foetal harm and/or c-section. The following are causes of insufficient power or improper contractions:

- a. Disordered uterine action;
- b. Colicky uterus;
- c. Constriction ring - Bandl's ring;
- d. Rigid cervix;
- e. Edematous cervix; and
- f. Annular detachment.

7.3.2 Passage Obstruction

Passage way obstructions (pelvic, uterine, cervix, etc.) can complicate the birthing process. These include:

- a. Tumors
- b. Cysts

- c. Fractures
- d. Subluxations
- e. Flat male-like pelvis (android)
- f. Physiological changes (degenerative joint disease, tuberculosis, rickets, osteomalacia)

7.3.3 Baby Malposition

Malposition of the foetus can lead to abnormal birth presentations. Some of the more common malposition birth presentations include:

7.3.4 Upside down Presentation

This presentation occurs in approximately 13% of births and involves a presentation where the baby presents itself in an "upside down" or "sunny side up" position. If the baby does not turn to the proper position or turns late, the new-born will generally develop "cone head". This position also produces what is known as "back labour". This can be significantly reduced in women who receive regular chiropractic care during their pregnancy.

In-Text Question

The following can complicate the birthing process

- a. Tumors
- b. Cysts
- c. Fractions
- d. Subluxations

In-Text Answer

- c. Fractions

7.3.5 Breech Presentation

In a breech presentation, the feet or buttocks present first as opposed to the head. This presentation occurs in about 1 out of every 40 births. Possible complications can be serious and include:

1. Intracranial bleeding
2. Neck dislocation
3. Shoulder dislocation
4. Hip dislocation
5. Clavicle fracture
6. Internal organ disruption
7. Genital edema
8. Premature placental rupture
9. Prolapsed cord
10. Uterine rupture

7.3.6 Face Presentation

Face presentation occur approximately every 3,000 births. In this presentation, the baby presents face first with the neck in extension. Causes include a lax uterus, flat pelvis, and multiple foetuses, anencephaly, or neck spasms of the foetus.

This is stressful on the cervical spine and usually results in a cervical subluxation in the new-born. Chiropractic care by a chiropractor trained in adjusting new-borns is crucial for the continued proper growth of the spine.

7.3.7 Shoulder Presentation

The shoulder presentation occurs in every 200-300 births and involves a "shoulder first" delivery. The causes include:

1. Twin birth
2. Hydramnios - excess of amniotic fluid
3. Placenta praevia - part of the uterus presents before the foetus due to placental malposition
4. Multiparty - woman who have had 3 or more children
5. Sub-septae uterus
6. Unusual foetal shape
7. Undue mobility of the pelvis

7.3.8 Forceps Delivery

In the event of foetal or mother distress or the labour is not going as planned, forceps assistance may be used. As forceps can cause a number of problems, forceps should only be used in absolutely necessary situations. The following injuries can result from improper/inappropriate forceps use:

1. Skull fractures
2. Birth marks
3. Doctor-induced torticollis
4. Brachial plexus damage

7.3.9 Caesarean Section

Although C-sections were becoming very popular a short while back, experts now recommend avoiding this procedure unless the mother or foetus are in extreme

distress. This is due to the invasiveness of the procedure and unnecessary stresses placed on the baby. The indications for caesareans are:

1. Placenta praevia - part of the uterus presents before the foetus due to placental malposition
2. Foetal distress
3. Maternal distress
4. Failure for labour to progress

Summary of Study Session 7

At the end of this study session, you have learnt about:

- 1) Pre-Natal Development
- 2) The Birthing Process
- 3) Complications during the Birthing Process

Self-Assessment Questions for Study Session 7

Now that you have completed this study session, you can assess how well you have achieved its Learning outcomes by answering the following questions. Write your answers in your study diary and discuss them with your Tutor at the next study Support Meeting. You can check your answers with the Notes on the Self-Assessment questions at the end of this Module.

SAQ 1 (Testing Learning outcomes 7.1)

Identify various stages of pre-natal development within the 9 months

SAQ 2 (Testing Learning outcomes 7.2)

Highlight and discuss the birthing or delivery process

SAQ 3 (Testing Learning outcomes 7.3)

Describe various complications that might occur during the delivery process

Notes on SAQs for Study Session 7

SAQ 1

First Trimester

First Month

Second Month

Third Month

Second Trimester

Fourth Month

Fifth Month

Sixth Month

Third Trimester

Seventh Month

Eighth and Ninth Month

SAQ 2

The four stages of Labour:

Stage 1 - from the outset of labour to full cervix dilation

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STAGE 2: Full Cervix Dilation to Delivery of Baby

Stage 2 generally takes from 15 to 50 minutes. During this time, uterine contractions strengthen and become more frequent. During this stage, mother will feel the need to bear down and push. The baby goes through a series of passive movements - especially the head, which undergoes flexion, internal rotation, extension, external rotation, and crowning (the first sign of the baby's head).

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This stage consists of the period immediately following birth to the expulsion of the placenta. This generally takes 5 to 10 minutes. Should the placenta fail to come out easily, tugging or pulling should not be performed. Gentle uterine massage may be utilized to assist in the release. The placenta should always be examined to be sure no parts remain within the uterus. This can become detrimental to the mother causing haemorrhage and/or death.

STAGE 4: Expulsion of Placenta to Afterbirth Recovery

During this stage, mother is monitored to be sure no uterine bleeding or other complications occur.

SAQ 3

Insufficient Power

Sufficient power and coordinated contractions are essential for a smooth uncomplicated labour. When the power of the contractions is weak, or the pattern of contractions disorganized, the mother is more likely to become exhausted. This can cause foetal distress resulting in foetal harm and/or c-section. The following are causes of insufficient power or improper contractions:

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Passage way obstructions (pelvic, uterine, cervix, etc.) can complicate the birthing process. These include:

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f. Physiological changes (degenerative joint disease, tuberculosis, rickets, osteomalacia)

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Breech Presentation

In a breech presentation, the feet or buttocks present first as opposed to the head. This presentation occurs in about 1 out of every 40 births. Possible complications can be serious and include:

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- d. Hip dislocation
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- g. Genital edema
- h. Premature placental rupture
- i. Prolapsed cord
- j. Uterine rupture

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7. Undue mobility of the pelvis

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2. Birth marks
3. Doctor-induced torticollis
4. Brachial plexus damage

Cesarean Section

Although c-sections were becoming very popular a short while back, experts now recommend avoiding this procedure unless the mother or foetus are in extreme distress. This is due to the invasiveness of the procedure and unnecessary stresses placed on the baby. The indications for cesareans are:

1. Placenta praevia - part of the uterus presents before the foetus due to placental malposition
2. Foetal distress
3. Maternal distress
4. Failure for labour to progress

Study Session 8 Neonatal Development

Expected duration: 1 week or 2 contact hour

Here is a growing baby having spent less than 21 days (Neonatal Development) a



Source: <http://www.liver.ca/files/Pictures/sleeping-baby.jpg>

Introduction

The first five years of life are a time of incredible growth and learning for a child. An understanding of the rapid changes in a child's developmental status prepares parents and caregivers to give active and purposeful attention to the pre-school years and to guide and promote early learning that will serve as the foundation for later learning. Understanding child development is an important part of teaching young children.

A new-born is an infant who is only hours, days, or up to a few weeks old. In medical contexts, new-born or neonate (from Latin, neonatus, new-born) refers to an infant in the first 28 days after birth; the term applies to premature infants, post mature infants, and full term infants. Before birth, the term fetus is used. Furthermore, during this study, you should be learning about Neonatal Development.

Learning outcomes for Study Session 8

At the end of this study session you should be able to:

- 8.1 Discuss neonatal reflexes
- 8.2 Discuss Motor development
- 8.3 Discuss Perception

8.1 Developmental milestones in neonatal perceptions

Developmental change is a basic fact of human existence and each person is developmentally unique. Although, there are universally accepted assumptions or principles of human development, no two children are alike. Children differ in

physical, cognitive, social, and emotional growth patterns. They also differ in the ways they interact with, and respond to, their environment as well as play, affection, and other factors.

Some children may appear to be happy and energetic all the time, while other children may not seem as pleasant in personality. Some children are active, while others are typically quiet. You may even discover that some children are easier to manage than others. A good understanding of the sequence of development prepares us to help and give attention to all of these children.



Figure 8.1: *A Happy baby*

Source: <http://images.cheapestees.com/product/detail/rabbit-skins-infant-lap-shoulder-t-shirt-r3400.jpg>

Physical development refers to physical changes in the body and involves changes in bone thickness, size, weight, gross motor, fine motor, vision, hearing, and perceptual development. Growth is rapid during the first two years of life. The child's size, shape, senses, and organs undergo some obvious change. As each physical change occurs, the child gains new abilities.

During the first year, physical development mainly involves the infant coordinating motor skills. The infant repeats motor actions, which serve to build physical strength and motor coordination.



Figure 8.2: *A Baby using its motor coordination*

Source: <http://wwwcdn.teachstone.com/wp-content/uploads/2014/04/teachstone-infant.jpg>

Physical development takes place quickly in the lives of children. The infant who was once immobile turns into the toddler who seems to be always on the move. Children differ in how quickly they develop large motor skills. This development occurs in stages, each one building upon the previous ones. The rate of this development is less important than the sequence. An environment that encourages physical development through exploration is important for children of all ages.

Children need to visit a doctor regularly because the doctor will monitor their growth and development. Parents who have concerns about their children's development should consult with a doctor.

8.1.1 First year:

- 1) Birth-2 months: babies focus on your face when you talk; arm and leg movements appear to be uncoordinated; weak neck muscles mean that babies cannot control their head movements.
- 2) 3-4 months: babies begin to develop head control and can lift their chests when placed on their stomachs. While you should let your baby have some supervised play time on her stomach, ALWAYS place your child on her back to sleep.
- 3) 4-5 months: babies roll from side to back and/or from back to side.
- 4) 6-7 months: babies can turn completely over (front to back and/or back to front).
- 5) 7 months: babies can pull themselves up to stand, but they may have trouble sitting down again.
- 6) 7-8 months: babies can sit up steadily with the support of their arms.
- 7) 8-10 months: babies can creep on their stomachs or begin to crawl on their hands and knees. (Some babies do not learn to crawl until after they learn to stand.)
- 8) 9-11 months: babies can walk when led by the hands or "cruise" holding onto furniture.
- 9) 12-15 months: babies can stand without holding on to anything and begin walking.

8.1.2 1-3 years:

1. 18 months: toddlers are walking well, both forward and backwards; they can creep down stairs and get on and off a low chair; they can throw a ball without losing balance.
2. 24 months: children are able to run and climb.
3. 36 months: children are refining large motor skills; they can alternate feet while climbing stairs, ride a tricycle, jump and balance on one foot. They can throw a ball overhand.
4. 36-48 months: children can run and skip well, play simple ball games, and are skilled tricycle riders.
5. 48-60 months: children can hop, skip, run, play with a ball, and climb.

In-Text Question

Growth is rapid during the _____ years of a baby's life?

- (a) First
- (b) First two

- (c) Second
- (d) Third

In-Text Answer

- (b) First two

8.1.1 Reflexes

Infants at birth have reflexes as their sole physical ability. A reflex is an automatic body response to a stimulus that is involuntary; that is, the person has no control over this response. Blinking is a reflex which continues throughout life. There are other reflexes which occur in infancy and also disappear a few weeks or months after birth.

The presence of reflexes at birth is an indication of normal brain and nerve development. When normal reflexes are not present or if the reflexes continue beyond the time they should disappear, brain or nerve damage should be suspected.

Some reflexes, such as the rooting and sucking reflex, are needed for survival. The rooting reflex causes infants to turn their heads towards anything that brushes their faces. This survival reflex helps them to find food such as a nipple. When an object is near a healthy infant's lips, the infant will begin sucking immediately. This reflex also helps the child get food. This reflex usually disappears by three weeks of age.



Figure 8.3: A baby reflexing

Source: <http://tinytotcdc.com/wp-content/uploads/2015/04/BabyMassageBenefits.jpg>

The Moro reflex or "startle response" occurs when a new-born is startled by a noise or sudden movement. When startled, the infant reacts by flinging the arms and legs outwards and extending their head, the infant then cries loudly, drawing the arms together. This reflex peaks during the first month and usually disappears after two months.

The Palmar grasp reflex is observed when the infant's palm is touched and when a rattle or another object is placed across the palm. The infant's hands will grip tightly. This reflex disappears the first three or four months after birth.

The Babinski reflex is present in normal babies of full term birth. When the sole of the infant's foot is stroked on the outside from the heel to the toes, the infant's toes fan out and curl and the foot twists in, this reflex usually lasts for the first year after birth.

The Stepping or walking reflex can also be observed in normal full term babies. When the infant is held so that the feet are flat on a surface, the infant will lift one foot after

another in a stepping motion. This reflex usually disappears two months after birth and reappears toward the end of the first year as learned voluntary behaviour.

In-Text Question

The Moro reflex or "startle response" occurs when a new-born is startled by a noise or sudden movement, TRUE/FALSE?

In-Text Answer

TRUE

8.2 Motor Sequence

Physical development is orderly and occurs in predictable sequence. For example, the motor sequence (order of new movements) for infants involves the following orderly sequence:

1. Head and trunk control (infant lifts head, watches a moving object by moving the head from side to side - occurs in the first few months after birth.
2. Infant rolls over turning from the stomach to the back first, then from back to stomach - four or five months of age.
3. Sit upright in a high chair (requires development of strength in the back and neck muscles)-four to six months of age.
4. Infant gradually is able to pull self into sitting positions.
5. Crawling - occurs soon after the child learns to roll onto the stomach by pulling with the arms and wiggling the stomach. Some infants push with the legs.
6. Hitching - infant must be able to sit without support; from the sitting position, they move their arms and legs, sliding the buttocks across the floor.
7. Creeping - As the arms and legs gain more strength, the infant supports his weight on hands and knees.
8. Stand with help - as arms and legs become stronger.
9. Stand while holding on to furniture.
10. Walk with help with better leg strength and coordination.
11. Pull self-up in a standing position.
12. Standalone without any support.
13. Walk alone without any support or help.

Changes in physical skills such as those listed above in the motor sequence, including hopping, running, and writing, fall into two main areas of development. Gross motor (large muscle) development refers to improvement of skills and control of the large muscles of the legs, arms, back and shoulders which are used in walking, sitting, running, jumping, climbing, and riding a bike.



Figure 8.4: An infant with his bike/bicycle

Source: <https://s-mediacacheak0.pinimg.com/236x/ba/25/46/ba2546d2e8306d23d47510563d89d478.jpg>

Fine motor (small muscle) development refers to use of the small muscles of the fingers and hands for activities such as grasping objects, holding, cutting, drawing, buttoning, or writing.

Early hand movements in infants are reflex movements. By three to four months, infants are still unable to grasp objects because they close their hands reflexively too early or too late, having no control over these movements. They will swipe at objects. By the age of nine months, infants improve eye-hand coordination which gives them the ability to pick up objects.

Children must have manual or fine motor (hand) control to hold a pencil or crayon in order for them to write, draw, or colour. Infants have the fine motor ability to scribble with a crayon by about 16 to 18 months of age when they have a holding grip (all fingers together like a cup). By the end of the second year, infants can make simple vertical and horizontal figures.

By two years of age, the child shows a preference for one hand; however, hand dominance can occur much later at around four years of age.

By the age of four, children have developed considerable mastery of a variety of grips, so that they can wrap their fingers around the pencil. Bimanual control is also involved in fine motor development, which enables a child to use both hands to perform a task, such as holding a paper and cutting with scissors, and catching a large ball.

In-Text Question

Early hand movements in infants are reflex movements, TRUE/FALSE?

In-Text Answer

TRUE

8.1.3 Vision

At birth, an infant's vision is blurry. The infant appears to focus in a centre visual field during the first few weeks after birth. In infants, near vision is better developed than their far vision. They focus on objects held 8 to 15 inches in front of them. As their vision develops, infants show preference for certain objects and will gaze longer at patterned objects (disks) of checks and stripes than disks of one solid colour.

Studies also show that infants prefer bold colours to soft pastel colours. They also show visual preference for faces more than objects. By two months of age, an infant will show preference (gaze longer) at a smiling face than at a face without expression.

As infants grow older, they are more interested in certain parts of the face. At one month of age, their gaze is on the hairline of a parent or other caregiver. By two months of age, infants show more interest in the eyes of a face. At three months of age, the infant seems very interested in the facial expression of adults. These changes in the infant's interest in facial parts indicate that children give thought to certain areas of the face that interest them.

8.1.4 Hearing

Hearing also develops early in life, and even before birth. Infants, from birth, will turn their heads toward a source or direction of sound and are startled by loud noises. The startle reaction is usually crying.

New-borns also are soothed to sleep by rhythmic sounds such as a lullaby or heartbeat. Infants will look around to locate or explore sources of sounds, such as a doorbell.

They also show reaction to a human voice while ignoring other competing sounds. A new-born can distinguish between the mother's and father's voices and the voice of a stranger by three weeks old. At three to six months, vocalizations begin to increase. Infants will increase their vocalizations when persons hold or play with them.

8.3 Perception

To explore their world, young children use their senses (touch, taste, smell, sight, and hearing) in an attempt to learn about the world. They also think with their senses and movement. They form perceptions from their sensory activities. Sensory-Perceptual development is the information that is collected through the senses, the ideas that are formed about an object or relationship as a result of what the child learns through the senses.

When experiences are repeated, they form a set of perceptions. This leads the child to form concepts (concept formation). For example, a child will see a black dog with four legs and a tail and later see a black cat with four legs and a tail and call it a dog. The child will continue to identify the cat as a dog until the child is given additional information and feedback to help him learn the difference between a dog and a cat.

Concepts help children to group their experiences and make sense out of the world. Giving young children a variety of experiences helps them form more concepts.

Summary of Study Session 8

At the end of this study session, you have learnt that:

- 1) Developmental change is a basic fact of human existence and each person is developmentally unique. Although, there are universally accepted assumptions

or principles of human development, no two children are alike. Children differ in physical, cognitive, social, and emotional growth patterns. They also differ in the ways they interact with, and respond to, their environment as well as play, affection, and other factors.

- 2) Baby's action and reaction changes over time due to learning and experiences, which influences it in reflexes, motor sequence, vision, hearing, perception.

Self-Assessment Questions for Study Session 1

Now that you have completed this study session, you can assess how well you have achieved its Learning outcomes by answering the following questions. Write your answers in your study diary and discuss them with your Tutor at the next study Support Meeting. You can check your answers with the Notes on the Self-Assessment questions at the end of this Module.

SAQ 1 (Testing Learning outcomes 8.1)

What are neonatal reflexes you know?

SAQ 2 (Testing Learning outcomes 8.2)

Mention the neonatal motor developments you are familiar with.

Notes on SAQs for Study Session 8

SAQ 1

Infants at birth have reflexes as their sole physical ability. A reflex is an automatic body response to a stimulus that is involuntary; that is, the person has no control over this response. Blinking is a reflex which continues throughout life. There are other reflexes which occur in infancy and also disappear a few weeks or months after birth.

The presence of reflexes at birth is an indication of normal brain and nerve development. When normal reflexes are not present or if the reflexes continue beyond the time they should disappear, brain or nerve damage should be suspected.

Some reflexes, such as the rooting and sucking reflex, are needed for survival. The rooting reflex causes infants to turn their heads towards anything that brushes their faces. This survival reflex helps them to find food such as a nipple. When an object is near a healthy infant's lips, the infant will begin sucking immediately. This reflex also helps the child get food. This reflex usually disappears by three weeks of age.

The Moro reflex or "startle response" occurs when a new-born is startled by a noise or sudden movement. When startled, the infant reacts by flinging the arms and legs outwards and extending their head, the infant then cries loudly, drawing the arms together. This reflex peaks during the first month and usually disappears after two months.

SAQ 2

1. Head and trunk control (infant lifts head, watches a moving object by moving the head from side to side - occurs in the first few months after birth.
2. Infant rolls over turning from the stomach to the back first, then from back to stomach - four or five months of age.
3. Sit upright in a high chair (requires development of strength in the back and neck muscles)-four to six months of age.
4. Infant gradually is able to pull self into sitting positions.

5. Crawling - occurs soon after the child learns to roll onto the stomach by pulling with the arms and wiggling the stomach. Some infants push with the legs

Study Session 9: Cognitive, Socio-Emotional Development in Infancy

Expected duration: 1 week or 2 contact hour

Here is a growing baby having spent less than 21 days (Neonatal Development) a



doing mental
work
(cognitive)

Source: http://www.child-encyclopedia.com/sites/default/files/styles/full_720x405/public/images/questions/social-cognition_720_0.jpg?itok=WQOZtMK2

Source: http://www.child-encyclopedia.com/sites/default/files/styles/full_720x405/public/images/questions/importance-early-childhood-development_720_0.jpg?itok=buShUJIA

Introduction

Babies do not only growing physically during the first 2 years of life, but also cognitively (mentally). Every day while they interact with and learn about their environment, they create new connections and pathways between nerve cells, their brains and their bodies.

While physical growth and change is easily observed and measured in precise terms such as in inches and pounds, cognitive change and development is a little harder to determine as clearly. In this study, we shall focus our discussion on the cognitive socio-emotional development of infants. We shall note how parents and other care could help in the process of these forms of development.

Learning outcomes for Study Session 9

At the end of this study session you should be able to:

- 9.1 Explain Cognitive development
- 9.2 Explain Social Emotional development in children

9.1 Cognitive Development

Cognitive development refers to the ways children reason (think), develop language, solve problems, and gain knowledge. Identifying colours, completing a maze,

knowing the difference between one and many, and knowing how things are similar are all examples of cognitive tasks. Children learn through their senses and through their interactions with people and things in the world.

They interact with the world through the senses (see, touch, hear, smell, taste), and construct meaning and understanding of the world. As children gain understanding and meaning of the world, their cognitive development can be observed in the ways they play, use language, interact with others, and construct objects and materials. As children grow and interact with their world, they go through various stages of development.



Figure 9.1: Cognitive (Intellectual/brain work)

Source: <http://mlkerleyteltimeline.weebly.com/uploads/1/6/8/1/16811636/1006672.jpg?441>

Although the stages are not precisely tied to a particular age, there are characteristics that describe children at different ages. The development of an individual is so complex and asynchronous that it is only systematic, scientific and longitudinal observation that could make it possible for man to comprehend it. This is the main responsibility of the developmental psychologists.

They study man's physical, cognitive and emotional development and its implications for the individual and the society at large. A child's birth weight quadruples by 2 years of age. Between the ages of 2 and 5, children gain an average of 4 1/2 to 6 1/2 pounds per year and grow 2 1/2 to 3 1/2 inches per year.

The child's head and trunk size are large in proportion to the rest of the body, making locomotion more difficult. However, as the legs grow, the child is able to move faster and more easily. Skeletal growth is steady in early childhood, and non-intensive physical activity does not damage growing bones. Joints are flexible, and they get even more flexible during this period.

During early childhood, other physical changes take place that enhance the child's ability to move and participate in physical activity:

1. Muscles continue to grow.
2. The nervous system continues to develop.
3. Vision and visual perception improve. (Children's vision does not fully mature before ages 6 or 7. Imprecise eye movements limit their ability to track and judge the speed of moving objects.)
4. Kinesthesia--the sense that detects body position, weight, and movement of the muscles, tendons, and joints--improves.
5. Sense of balance improves.

In-Text Question

Muscles growth enhances a child's ability to move and participate in physical activity, TRUE/FALSE?

In-Text Answer

TRUE

9.1.1 Cognition Improves

Sensorimotor Stage

The sensorimotor stage occurs in infancy from birth to about 12 months. Here, infants learn about the world through their senses, looking around constantly, looking at faces of caregivers, responding to smiling faces.

Their eyes focus on bright colours and they respond to sounds by looking towards the sound. During this time of sensory learning, infants also show interest in light and movement, such as a mobile above the crib. Infants also begin to recognize their own names in this stage.

Infants also learn through communication. Their initial communication is through crying which is a general cry to bring attention to their needs. Later, the cry changes and becomes different and more specific to identify what the baby needs or wants.

The cry develops into gestures, and the beginning stages of language such as babbling, then monosyllables such as "ba" and "da" and later to single words put together to make a meaningful sentence.



Figure 9.2: Improving Cognition

Source: http://cdn.theatlantic.com/static/mt/assets/food/main%20Dmitry%20Naumov%20shutterstock_37443211.jpg

You can observe that infants also communicate through their motor actions. As they grow, they kick and use their arms to reach for people and things that are interesting to them. They respond to voices and seek to be picked up by reaching out.

Infants make a very important learning discovery - that through their actions of reaching, making sounds, or crying, they cause others to respond in certain ways.

It is very important that parents and other caregivers nurture and respond to the infant's actions; to hold, carry the infant, sing to the infant, play with the infant, and meet his needs in other responsive and nurturing ways.

As infants continue to interact with their surroundings and make meaning out of their world, they also learn about themselves, their own bodies. Their hands and toes become body objects of interest.

They suck on their hands and toes and may seem to be fascinated with their own hands. During this stage of sensory learning, infants reach for, hit at, and grasp objects that are within their reach, such as dangling jewellery and long hair.

They also enjoy toys that rattle and squeak and will put any and all things in the mouth. These are all sensory ways that the infant learns; however, we must make sure that the objects are clean and safe for the baby to explore.



Figure 9.3: *Babies and Toys*

Source: <http://www.friendshipcircle.org/blog/wp-content/uploads/2014/06/Kids-playing-with-colorful-blocks-and-trucks-e1402088205854.jpg>

As infants master new developments in the motor sequence (creeping and crawling), they learn that they have more control over their world. They are no longer totally dependent on an adult to meet some of their needs. For example, if an infant sees a toy on the floor, or his feeding bottle on a table within his reach, he has the motor capacity to move towards it and reach for it.

The infant's increased freedom to move and have toys and objects within reach is very important. The task for adults, parents and other caregivers is to ensure that babies have a safe and clean environment in which they can move about and interact.

Box 9.1: Recall

Infants make a very important learning discovery - that through their actions of reaching, making sounds, or crying, they cause others to respond in certain ways. It is very important that parents and other caregivers nurture and respond to the infant's actions; to hold, carry the infant, sing to the infant, play with the infant, and meet his needs in other responsive and nurturing ways.

Understanding the characteristics of cognitive development gives us knowledge and insights into how children are developing, thinking, and learning. Principles of cognitive development provide us with a basis for understanding how to encourage exploration our babies in their process of, thinking, and learning.

As parents and caregivers, we can support cognitive development in infants and young children by providing a variety of appropriate and stimulating materials and activities that encourage curiosity, exploration, and opportunities for problem solving.

9.1.2 Object Permanence

Between the ages of six to nine months, the concept of object permanence develops. This is the infant's understanding that an object continues to exist even if it is out of the infant's sight. Prior to this time, the infant's understanding is "out of sight, out of mind." Objects cease to exist when the infant does not see them.

For example, when an infant plays with a rattle or any other toy and a blanket is placed over the rattle, the infant does not search for it because it does not exist again in the mind of the infant. When object permanence is developed, the child begins to understand that the rattle is still there even though it is covered, out of sight.

The infant's understanding of object permanence means that infants are developing memory capacity and goal-oriented thinking. Searching under a blanket for a rattle means that the child remembers that the rattle was there.

It also means that the infant has a goal of finding the rattle and takes action to find it. Infants during this time will give up searching within a few seconds if they do not find the object.

Also important to object permanence is the understanding that other people exist all the time. Children begin to understand that they can cry not just to get needs met but as a means of calling parents or other caregivers.

They know that even if a person is not within their reach or their sight, the person still exists. The cry will call the person to them. Also, crying to call a person is a sign that infants are learning to communicate.

In-Text Questions

The sensorimotor stage occurs in infancy from birth to about _____?

- (a) A week
- (b) A month
- (c) A quarter
- (d) A year

In-Text Answer

- (b) A month

9.2 Social-Emotional Development

The expression of feelings about self, others, and things describe emotional development. Learning to relate to others is social development. Emotional and social development are often described and grouped together because they are closely interrelated growth patterns.

Feelings of trust, fear, confidence, pride, friendship, and humour are all part of social-emotional development.



Figure 9.4: An Infant in Socio-emotional development

Source: <http://gracepointwellness.org/images/root/children/mother-and-baby2.jpg>

Other emotional traits are self-concept and self-esteem. Learning to trust and show affection to others is a part of social-emotional development. The child's relationship to a trusting and caring adult is a foundation of emotional development and personality development. Furthermore, when a child has been neglected, rejected, and does not feel secure, he has difficulty developing skills to socialize with others.

9.2.1 Temperament

Children, from birth, differ in the ways they react to their environment. Temperament refers to the quality and degree or intensity of emotional reactions. Passivity, irritability, and activity are three factors that affect a child's temperament. Passivity refers to how actively involved a child is with his or her environment or surroundings. A passive infant withdraws from or is otherwise not engaged with a new person or event.

An active infant does something in response to a new person or event. There is also difference in the level of irritability (tendency to feel distressed) of infants. Some infants may cry easily and be difficult to comfort and soothe even if you hold them. Other infants may rarely cry and are not bothered as much by change. Caring for these infants is usually viewed as easier for adults. Activity levels or levels of movement also vary in infants.



Figure 9.5: A (Sanguine baby) showing its temperament

Source: <http://mercercognitivepsychology.pbworks.com/f/1291081386/baby-on-phone.jpg>

Some infants make few movements, are quiet, and when asleep, may hardly move. Other infants constantly move their limbs (arms and legs) and may be restless in sleep. As caregivers, we need to nurture and give loving attention to all infants regardless of their temperament. We also need to adjust to the temperament of different children. Even very irritable infants can grow to be emotionally happy and well-adjusted if caregivers are patient, responsive, and loving in their caregiving ways.

Box 9.2: Infants at Birth

At birth, infants do not show a wide range of emotions. They use movements, facial expressions, and sounds to communicate basic comfort or discomfort. They coo to show comfort and cry to show that they are uncomfortable. In the first few months, infants display a range of emotions as seen through their facial expressions. Happiness is shown when the corners of the mouth are pulled back and the cheeks are raised.

The infant will begin to show fear, anger, and anxiety between six and nine months of age. Signs of fear are the open mouth with the corners of the mouth pulled back, wide eyes, and raised eyebrows. By the end of the second year, children have developed many ways to express their emotions.

9.2.2 Attachment

Socially, young children and particularly infants tend to focus on the adults who are close to them and become bonded to a small group of people early in life - mainly the people who care for them. This forms the basis for attachment which is the strong emotional tie felt between the infant and the significant other. The quality of attachments depends upon the adults.

When attachments are formed, young infants learn that they can depend on mothers, fathers, caregivers, or older siblings to make them feel better.



Figure 9.6: An Infant building a secure attachment

Source: <http://helpguide.org/images/secure-attachment/cute-baby-350.jpg>

Attachment begins early in life and infants show several early attachment behaviours. Behaviours such as kicking, gurgling, smiling and laughing shows that infants care for, and respond early to, people who are important to them. Crying and clinging are also attachment behaviours of infants which are used to signal others. Infants as early as one month old show signs of attachment in the form of anxiety if they are cared for by an unfamiliar person.

They may show distress signs such as irregular sleeping or eating patterns.

9.2.3 Separation Anxiety

Separation anxiety is attachment behaviour of infants. This is when a child shows distress by often crying when unhappy because a familiar caregiver (parent or other caregiver) is leaving. The first signs of separation anxiety appear at about six months of age and are more clearly seen by nine months of age. Separation anxiety is very strong by 15 months of age and begins to gradually weaken around this time also.

Parents and other caregivers need to understand and prepare for this attachment behaviour (separation anxiety) in children by making transitions easier for the child. Children between the ages of 9 and 18 months will usually have a lot of difficulty beginning a child care programme. Parents can make the transition easier by bringing the child's favourite toy or blanket along.

It is also important to understand separation anxiety as a normal developmental process in which children are fearful because their familiar caregivers are leaving them. Children beginning a child care programme are in an unfamiliar surrounding with unfamiliar people. Children will gradually show less distress as the setting, the people, and routines become more familiar to them.

An understanding of infant growth and development patterns and concepts is necessary for parents and caregivers to create a nurturing and caring environment which will stimulate young children's learning. The growth and development of infants are periods of rapid change in the child's size, senses, and organs. Each change brings about new abilities.

An infant's development in motor coordination, forming concepts, learning and using language, having positive feelings about self and others prepares them to build upon new abilities that will be needed for each change in a new stage of development. Caregivers can provide activities and opportunities for infants that encourage exploration and curiosity to enhance children's overall development.

Summary of Study Session 9

At the end of this study session, you have learnt that:

1. Cognitive development refers to the ways children reason (think), develop language, solve problems, and gain knowledge. Identifying colours, completing a maze, knowing the difference between one and many, and knowing how things are similar are all examples of cognitive tasks. Children learn through their senses and through their interactions with people and things in the world.
2. The expression of feelings about self, others, and things describe emotional development. Learning to relate to others is social development. Emotional and social development are often described and grouped together because they are

closely interrelated growth patterns. Feelings of trust, fear, confidence, pride, friendship, and humour are all part of social-emotional development.

Self-Assessment Questions for Study Session 9

Now that you have completed this study session, you can assess how well you have achieved its Learning outcomes by answering the following questions. Write your answers in your study diary and discuss them with your Tutor at the next study Support Meeting. You can check your answers with the Notes on the Self-Assessment questions at the end of this Module.

SAQ 1 (Testing Learning outcomes 9.1)

What is sensorimotor stage?

SAQ 2 (Testing Learning outcomes 9.2)

- i What is objective permanence?
- ii Write short notes on (a) Temperament (b) Separation anxiety (c) attachment.

Notes on SAQs for Study Session 9

SAQ 1

The sensorimotor stage occurs in infancy from birth to about 12 months. Here, infants learn about the world through their senses, looking around constantly, looking at faces of caregivers, responding to smiling faces. Their eyes focus on bright colours and they respond to sounds by looking towards the sound. During this time of sensory learning, infants also show interest in light and movement, such as a mobile above the crib. Infants also begin to recognize their own names in this stage.

SAQ 2

Objective permanence

Between the ages of six to nine months, the concept of object permanence develops. This is the infant's understanding that an object continues to exist even if it is out of the infant's sight. Prior to this time, the infant's understanding is "out of sight, out of mind." Objects cease to exist when the infant does not see them.

Temperament

Children, from birth, differ in the ways they react to their environment. Temperament refers to the quality and degree or intensity of emotional reactions. Passivity, irritability, and activity are three factors that affect a child's temperament. Passivity refers to how actively involved a child is with his or her environment or surroundings. A passive infant withdraws from or is otherwise not engaged with a new person or event.

Separation anxiety

Separation anxiety is attachment behaviour of infants. This is when a child shows distress by often crying when unhappy because a familiar caregiver (parent or other caregiver) is leaving. The first signs of separation anxiety appear at about six months of age and are more clearly seen by nine months of age. Separation anxiety is very strong by 15 months of age and begins to gradually weaken around this time also.

Attachment

Socially, young children and particularly infants tend to focus on the adults who are close to them and become bonded to a small group of people early in life - mainly the

people who care for them. This forms the basis for attachment which is the strong emotional tie felt between the infant and the significant other. The quality of attachments depends upon the adults.

Study Session 10: Physical, Cognitive and Socio-Emotional Development in Late Childhood (9-12)

Expected duration: 1 week or 2 contact hour

Children often come with surprises and shocks to everyone at this stage of life. They believe that they are getting into freedom of everything. Between ages 9 and 12 is term "puberty" refers to a stage of biological maturation where a boy or girl becomes capable of reproduction.



Source: http://www.gannett-cdn.com/-mm-/fb7efd08cd34f6e399ab01ce8c1d6558c9278c06/c=0-6-588-448&r=x404&c=534x401/local/-/media/Indianapolis/2015/04/19/B9316653164Z.1_20150419080226_000_G7TAH0JPA.1-0.jpg

Introduction

In the preceding studies before this particular one, you should have been enlightened about Pre-Natal development and birth of a child, the Neonatal development of a child, Cognitive, Socio-Emotional Development in Infancy, and finally here as a conclusion, focus will be on the physical cognitive and socio-emotional development in late childhood that is as these forms of development apply to children between the ages of 9 to 12.

This is a combination of previous topics, but now in the late child hood age between ages 9 and 12, just before they become teenagers.

Learning outcomes for Study Session 10

At the end of this study session you should be able to:

- 10.1 Discuss Physical development in late childhood;
- 10.2 Explain Cognitive development in late childhood;
- 10.3 Explain Socio-emotional development in late childhood; and
- 10.4 Discuss Implications of these developments on sexuality.

10.1 Physical development

In the years from 9 to 12, most children will begin a rapid phase of transition from childhood to adolescence. The term "puberty" refers to a stage of biological maturation where a boy or girl becomes capable of reproduction. Although some children will begin the changes of puberty before age 9, most will begin the process of rapid growth and physical changes in the years between 9 and 12.

For some children, noticeable changes do not begin to occur until age 13 or in rare cases until age 14 or later. On average, girls will begin puberty at age 10 or 11 and boys will begin at age 11 or 12. There are a number of noticeable physical signs that a boy or girl has begun puberty. Overall physical growth will accelerate with some boys and girls growing several inches taller per year.

For girls, these changes include breast development, the appearance of hair in the genital (pubic) and underarm areas. The sweat glands in the genital and underarm areas become active. This is also the time when most girls will start to experience menstruation (see below). A girl's internal reproductive organs (ovaries, uterus, and vagina) grow rapidly during puberty. The external genitalia (clitoris, labia) will also increase in size



Figure 10.1: Children sudden growth

Source: <http://f.tqn.com/y/childparenting/1/W/7/T/-/-/103736527.jpg>

The average age of first menstruation for girls living in North America is about 12 ½ years but it is quite normal if a girl has her first menstruation several years before she reaches the age of 12 or if she has her first menstruation several years afterward. A girl who has begun puberty will experience vaginal lubrication that accompanies sexual arousal.

The physical changes of puberty are similar for boys. They will begin to grow hair in the underarm and genital areas. The penis and scrotum will begin to grow larger and many boys will begin growing facial hair that becomes courser and darker over time. A boy who has begun puberty will sooner or later experience ejaculations which may occur while he is asleep (commonly referred to as a wet dream).

A boy going through puberty will experience erections much more frequently than he did in the past. Puberty is typically the time where the nature and the frequency of masturbation in both boys and girls change compared to what obtained in earlier childhood. The focus of masturbation becomes geared towards pleasure and orgasm. Many girls and boys who did not masturbate earlier in their lives will begin to do so during puberty.



Figure 10.2: Puberty in a young child

Source: <http://cf.ltkcdn.net/hair/images/std/3021-250x375-Littlegirlhair2.jpg>

While nearly all adolescents will experiment with some form of masturbation, some will masturbate regularly and some will do so infrequently or not at all. Unless an adolescent masturbates so frequently that it interferes with basic aspects of his or her life (e.g., school, family and social life), it does not cause physical or psychological harm.

It is important for parents and educators to make sure those children are fully aware of what changes to expect when puberty begins well before the changes actually begin to occur. After a long period of gradual and predictable growth, during puberty a young person's body begins growing very quickly and in very different ways than it did before. These changes can be confusing and traumatic, particularly if a boy or girl does not know they are coming.

The first major step a parent or educator can take in assisting a young person through puberty is to make them fully aware of the changes that will occur. Not only should boys and girls be fully aware of the changes that will occur in their own bodies but they should also be provided with opportunities to learn about the changes that occur in the opposite sex.

In-Text Question

Some children will begin the changes of puberty before age 9, most will begin the process of rapid growth and physical changes in the years between ____ and ____?

- (a) 4 and 5
- (b) 9 and 10
- (c) 8 and 9
- (d) 9 and 12

In-Text Answer

- (d) 9 and 12

10.2 Cognitive development in late childhood

Conservation or Liquid Conservation is the principle that the physical properties of an object remain the same despite changes in its appearance. In the test of conservation pictured, the child was first asked to compare identical amounts of liquid in the two short glasses. Then liquid from the late glass was poured into the taller, thinner glass. The child has indicated that the amounts of liquid in the two different glasses are still the same, indicating that she understands conservation. Swiss psychologist, Jean Piaget, believed that the ability to understand conservation marks an important developmental milestone for children (Corbis&Dwight, 2006).



Figure 10.3: A girl putting her development Cognitive to work

Source: <http://d236bkdxj385sg.cloudfront.net/wp-content/uploads/2011/02/black-girls-long.jpg>

It is no accident that throughout most of the world, children begin formal education at age six or seven. The intellectual skills of late childhood are well suited for school. Children become capable of reasoning logically and systematically, whether about a lunar eclipse, chess, or the motives of story characters. Their thinking is also more fluid and flexible:

1. A grade-schooler can follow a line of reasoning—say, solving an equation—and, realizing that an error has been made, mentally reverse course and start from the beginning again. A grasp of logical principles helps older children

readily understand science, math, and many other subjects. They can concentrate better, and longer, than before.

2. Learning to Read Chinese: A seven-year-old girl receives help from her mother as she learns to read Chinese. Reading ability, vocabulary, and grammar skills improve greatly during a child's elementary school years. **Corbis Dwight**, 2006.
3. Older children also begin to master and enjoy their intellect. They become more consciously aware of their mental processes—such as what it takes to memorize a spelling list or remember a specific past event—and can deliberately enlist their cognitive powers to accomplish their goals. For example, they enlist memory strategies that strengthen their recall of experiences and information.
4. Older children seem to think more quickly than younger children (and many adults) because they know how to do so. They spontaneously monitor and evaluate their progress and thus correct and improve their work. They are more likely to use external aids, such as writing things down, to help them think. These qualities make older children more capable and motivated learners.
5. Elementary School Classroom: Students in an elementary school classroom raise their hands to answer a teacher's question. Participation in classroom activities helps children develop the social, intellectual, and cultural skills they need to function in society (Denny, 2006).
6. Many other cognitive skills also improve. Reading and mathematical abilities/skills advance significantly, along with vocabulary and grammatical skills. Many children begin to learn a second language in late childhood. Children's knowledge of many specific topics that interest them expands dramatically, whether of planets, dinosaurs, or rock stars. Capacities to read music and master a musical instrument grow significantly.
7. Although children at this stage are still rather concrete thinkers—that is, abstractions and hypothetical issues are hard for them to understand—they have the intellectual skills to function competently in the adult world.
8. The cognitive achievements of late childhood both contribute to school success and are, in part, a result of schooling. Effective classroom instruction strengthens children's capacity for logical, objective reasoning through well-designed activities that promote active learning. Children also benefit from group projects as peers sharpen each other's intellectual skills.

However, intellectual growth in late childhood is not just a result of the growth of the mind in combination with classroom practices; parental support is another crucial ingredient. Parents who value learning, have high expectations for their children's academic success, and also supervise homework and other school-related activities contribute significantly to their children's cognitive growth and school success.

Because learning is more formalized in late childhood, achievement is evaluated more objectively and publicly. Schoolchildren receive formal and informal evaluations of their work in the classroom and in school-wide achievement testing.



Figure 10.4: *Class room contributing to intellectual growth*
Source: <http://news.ugo.co.ug/wp-content/uploads/Classroom-Uganda-copy.jpg>

Consequently, children quickly learn how their abilities measure up with their peers and with teacher expectations. In comparing themselves to their peers, older children develop a more balanced view of their intellectual strengths and weaknesses. In contrast to optimistic pre-schoolers, who tend to believe they can improve their intellectual skills through effort and practice, older children begin to view their intellectual abilities as relatively permanent traits.

They may conclude that they are “good at” some subjects but that they “can’t do” others. These self-evaluations tend to make older children less confident and more self-critical, causing some of them to give up too early when faced with intellectual tasks that are challenging but within their reach.

10.3 Socio-emotional development in late childhood

The biological aspects of puberty, while certainly profound, only tell half of the story. The emotional/psychological aspects of puberty (many of which are linked to biological maturation: e.g. increases in testosterone) are equally significant, particularly as they relate to sexuality. As they go through puberty, it is typical for young people to develop a heightened, at times seemingly obsessive, preoccupation with their physical appearance.

Anxiety over physical appearance can lead to feelings of inadequacy. Relationships with peers are also likely to change. In the years leading up to puberty, there is a tendency for children to interact mostly with same sex peers. However, as youths approach the teen years, they begin to increase social interaction with the opposite sex.

Box 10.1 Recall

For some children, noticeable changes do not begin to occur until age 13 or in rare cases until age 14 or later. On average, girls will begin puberty at age 10 or 11 and boys will begin at age 11 or 12. There are a number of noticeable physical signs that a boy or girl has begun puberty. Overall physical growth will accelerate with some boys and girls growing several inches taller per year.

It is during this period that feelings of attraction may take on an overtly sexual component. The "crushes" that younger children often have will, with the beginning of puberty, evolve into more adult like attractions that may include feelings of sexual attraction.

Socially, youths entering puberty will be taking more pronounced steps into adult gender roles and in so doing they may begin dating or more likely in their words "hanging out", or "going with", or "go together".

Typically, in the 9 to 12 age groups such relationships do not involve sexual intercourse. Youths of this age are much more likely to be kissing and hugging, while breast and genital touching are less likely but not uncommon.

In-Text Question

Between age 9 and 12 anxiety over physical appearance can lead to feelings of inadequacy, TRUE/FALSE?

In-Text Answer

TRUE

10.4 Sexuality in Late Childhood

For most young people, it is likely that the basis of their sexual orientation will have been formed well before puberty. However, as youths begin to experience the more direct sexual attraction and fantasy that accompany puberty, lesbian, gay, and bisexual youths are likely to become more concretely aware of their sexual orientation.



Figure 10.5: Sexuality in late childhood

Source: <http://www.themamabeareffect.org/uploads/3/1/5/9/3159349/5105008.jpg>

In other words, these youths are at the time in their lives where their homosexual or bisexual orientation is leading them to the developmental task of establishing to themselves, and perhaps to others, a self-identity as gay, lesbian or bisexual. This may cause added stress to the experience of puberty for homosexual and bisexual youths.

It is also not uncommon for heterosexual youths, particularly in early adolescence, to have some same gender sexual attractions or fantasies. This is not unusual and such attractions should be not seen as necessarily indicative of a youth's sexual orientation.

In some parts of the world, most youths in the 9 to 12 age groups may not have experienced sexual intercourse. At present, the median age of first intercourse for males and females in Canada is 17. That is, half of Canadian teens will have intercourse before age 17 and half will have it after age 17. About 5% of boys and 1% of girls will have had intercourse by their 12th birthday.

By the age of 14, about 30% of males and 20% of females will have had sexual intercourse at least once. These figures on the age of first intercourse among youths are important for parents/caregivers and educators to consider because they clearly point to the need for youths in the 9 to 12 age groups to receive broadly-based sexual health education.

It is clear that if sexual health education is to meaningfully assist youths in promoting and enhancing their sexual health, it must provide relevant information, motivation, and behavioural skills before they become sexually active. For example, information and skills geared towards helping youth delay first intercourse that is initially provided when they are at age 14 will be too late for many.

More importantly, since approximately a quarter of youths do have intercourse by the time they are 14, it is vital that those youths who do become sexually active at this point are fully educated and equipped to protect themselves against unintended pregnancy and sexually transmitted diseases. As children enter puberty, they enter a period of heightened sexuality. Nearly all youths at this phase of development are preoccupied to some extent with sexuality.

As a result, 9 to 12 is a critical period for the provision of sexual health education.

Developmental Outcomes

1. Physical changes associated with puberty
2. Psychological/social changes associated with puberty
3. Full understanding of rights and responsibilities related to sexuality and relationships.

Common Behaviours

1. Dating (i.e., going with)
2. Physical intimacy (kissing, petting)
3. Masturbation
4. Preoccupation with sexuality (e.g., frequently makes references to sexuality)
5. Interest in sexual media
6. Concerns
7. Premature initiation of adult sexual activity
8. Difficulty adjusting to homosexual or bisexual orientation

- 9. Difficulty with body image
- 10. Difficulty with social skills
- 11. Learning Objectives
- 12. Complete knowledge of the physical and psychological aspects of puberty.
- 13. Broadly-based sexual health education, including delay of first intercourse and contraception/safer sex.
- 14. Social skills education related to rights and responsibilities in relationships and mutually satisfying interpersonal relationships.
- 15. Development of media literacy skills to understand, interpret, and evaluate media sexuality messages and imagery.

Summary of Study Session 10

At the end of this study session, you have learnt that:

1. In the years from 9 to 12, most children will begin a rapid phase of transition from childhood to adolescence. The term "puberty" refers to a stage of biological maturation where a boy or girl becomes capable of reproduction. Although some children will begin the changes of puberty before age 9, most will begin the process of rapid growth and physical changes in the years between 9 and 12.
2. Conservation or Liquid Conservation is the principle that the physical properties of an object remain the same despite changes in its appearance. In the test of conservation pictured, the child was first asked to compare identical amounts of liquid in the two short glasses. Then liquid from the late glass was poured into the taller, thinner glass.
3. The biological aspects of puberty, while certainly profound, only tell half of the story. The emotional/psychological aspects of puberty (many of which are linked to biological maturation: e.g. increases in testosterone) are equally significant, particularly as they relate to sexuality. As they go through puberty, it is typical for young people to develop a heightened, at times seemingly obsessive, preoccupation with their physical appearance.
4. For most young people, it is likely that the basis of their sexual orientation will have been formed well before puberty. However, as youths begin to experience the more direct sexual attraction and fantasy that accompany puberty, lesbian, gay, and bisexual youths are likely to become more concretely aware of their sexual orientation.

Self-Assessment Questions for Study Session 10

Now that you have completed this study session, you can assess how well you have achieved its Learning outcomes by answering the following questions. Write your answers in your study diary and discuss them with your Tutor at the next study Support Meeting. You can check your answers with the Notes on the Self-Assessment questions at the end of this Module.

SAQ 1 (Testing Learning outcomes)

Vividly describe the socio-emotional development in late childhood.

SAQ 2 (Testing Learning outcomes)

What are the major events in the cognitive domain of an individual in late childhood?

Notes on SAQs for Study Session 10

SAQ 1

The biological aspects of puberty, while certainly profound, only tell half of the story. The emotional/psychological aspects of puberty (many of which are linked to biological maturation: e.g. increases in testosterone) are equally significant, particularly as they relate to sexuality. As they go through puberty, it is typical for young people to develop a heightened, at times seemingly obsessive, preoccupation with their physical appearance.

Anxiety over physical appearance can lead to feelings of inadequacy. Relationships with peers are also likely to change. In the years leading up to puberty, there is a tendency for children to interact mostly with same sex peers. However, as youths approach the teen years, they begin to increase social interaction with the opposite sex.

It is during this period that feelings of attraction may take on an overtly sexual component. The "crushes" that younger children often have will, with the beginning of puberty, evolve into more adult like attractions that may include feelings of sexual attraction. Socially, youths entering puberty will be taking more pronounced steps into adult gender roles and in so doing they may begin dating or more likely in their words "hanging out", or "going with", or "go together".

SAQ 2

Conservation or Liquid Conservation is the principle that the physical properties of an object remain the same despite changes in its appearance. In the test of conservation pictured, the child was first asked to compare identical amounts of liquid in the two short glasses. Then liquid from the late glass was poured into the taller, thinner glass.

The child has indicated that the amounts of liquid in the two different glasses are still the same, indicating that she understands conservation. Swiss psychologist, Jean Piaget, believed that the ability to understand conservation marks an important developmental milestone for children (Corbis & Dwight, 2006).

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A grade-schooler can follow a line of reasoning—say, solving an equation—and, realizing that an error has been made, mentally reverse course and start from the beginning again. A grasp of logical principles helps older children readily understand science, math, and many other subjects. They can concentrate better, and longer, than before.

References

- Bergen, Doris. 1988. "Stages of Play Development," *Play as a Medium for Learning and Development*. Ed. Doris Bergen, Portsmouth, NH: Heinemann.
- Bowlby, John. 1969. *Attachment, Attachment and Loss*. Vol. I. New York: Basic Books.
- Falaye, A.O. 2001. *Human Development*. Ibadan: Stirlin-Horden.
- Forman, George, and David Kushner. 1983. *The Child's Construction of Knowledge*. Washington, DC: NAEYC.
- Greenspan, S. 1997. *Growth of the Mind*. New York: Addison Wesley.
- Lerner, Clair. 2000. *The Magic of Everyday Moments. Zero To Three*, Washington, DC.
- Santrock, John W. (2004) *Life-Span Development* (9th ed.). New York: McGraw-Hill, Inc.
- Shore, R. 1997. *Rethinking the Brain: New Insights into Early Development*. New York: Families and Work Institute.
- Sprain, Joan. 1990. *Developmentally Appropriate Care: What Does It Mean?* National Network for Child Care - NNCC