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DEVELOPMENTAL PSYCHOLOGY

SEMESTER – IV

EDUCATION

COURSE 03

BLOCK 1

KRISHNA KANTA HANDIQUI STATE OPEN UNIVERSITY

Subject Experts

Prof. Swarnalata Das, Dept. of Education, Gauhati University
Prof. Gayatree Goswamee, Dept. of Education, Gauhati University
Dr. Sadhana Goswami, Dept. of Education, Cotton University

Course Co-ordinator : **Dr. Archana Adhikary,** KKHSOU

SLM Preparation Team

Units	Contributors
1, 2, 5 & 6	**Dr. Archana Adhikary,** KKHSOU
3 & 4	**Hridaya Nanda Borah,** North-Gauhati College
7 & 8	**Bandana Gogoi,** North-Kamrup College

Editorial Team

Content : **Prof. Polee Saikia,** Gauhati University (Unit 1, 2, 3, 4, 5, 6, 7, 8)

Language : **Dr. Sukanya Kashyap,** USTM

Format : **Dr. Archana Adhikary,** KKHSOU

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Headquarters: Patgaon, Rani Gate, Guwahati 781017
City Campus: NH 17, Resham Nagar, Khanapara, Guwahati-781022, Web: www.kkhsou.in

COURSE INTRODUCTION

This is the third course in Education for the fourth semester of two year Master Degree Level. The course consists of two blocks. This course primarily will deal with the basic concepts of developmental aspects of human being. As we know that human life is marked by sequential phases with certain behavioural changes brought by growth and development. This course will introduce you with the basic concept of developmental psychology and different stages of human life marked by significant behavioural changes. The first section of the course will introduce you with the concept, method of developmental psychology and the initial stages of human life. The second section of this course will help you to get acquainted with most challenging stages of human life and its allied aspects. After going through this course, you will have a clear picture how an individual is born and developed through different stages of human development.

BLOCK INTRODUCTION

This is the first block of this course. It comprises of total eight units of the course. The **first Unit**- ***"Developmental Psychology"*** deals with the meaning and nature of developmental psychology as an important branch of general psychology. The **second unit**- **"*History of Developmental Psychology*"** covers the life –span of an individual. The **third unit**- **"*Methods of Studying Development-I"***, and the **fourth unit "*Methods of Studying Development-II*"** deals with the basic methods of studying human behavior. The **fifth unit "*Pre-Natal Development*"** covers the developmental changes that occur in a fetus since conception to birth. The **sixth unit- "*Development of New Born Infant"*** deals with the new born babies' developmental characteristic*.* The **seventh unit "*Development through the First Year"*** covers the first year of human development. The **eight** and **last unit** of this block ***"Development in the Toddler"*** explains about different developmental characteristics of toddler.

While going through this block, you will come across some boxes in the middle of the text. These boxes will explain you more about some important points and concept within the text. Apart from this, there will be some broad and short questions which have been included under **"ACTIVITY"** and "**CHECK YOUR PROGRESS"** in every unit. Activities will increase your thinking and reasoning capacity as questions put in **ACTIVITY** are not directly derived from text. Hints on the answer to the short questions have been put under section **"ANSWER TO CHECK YOUR PROGRESS"** .Besides, a few text-related questions have been out in **"POSSIBLE QUESTIONS/ MODEL QUESTIONS".** These questions will help to draw your attention on the probable topics for the examinations so that you can prepare for the examination with confidence and determination.

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UNIT 1 : DEVELOPMENTAL PSYCHOLOGY

UNIT STRUCTURE

1.1 Learning Objective

1.2 Introduction

1.3 Concept and Meaning of Developmental Psychology

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1.5 Scope of Developmental Psychology

1.6 Let Us Sum Up

1.7 Further Reading

1.8 Answer To Check Your Progress

1.9 Possible Questions

1.1 LEARNING OBJECTIVES

After going through this unit, you will be able to-

- understand the concept and meaning of developmental psychology
- comprehend the concept of growth and development
- explain the scope of developmental psychology.

1.2 INTRODUCTION

We all are clearly acquainted with the fact that development is not a one day process. We see an infant or toddler developing day by day and acquiring different physical and mental changes and turning to children or adolescents as per the nature of change and age respectively. There is a branch of psychology which studies about the behavioural changes brought to human being with ages and letting the individual to known as a specially categorized term. This branch of psychology is Developmental psychology. It is a subfield within psychology which focuses on the study of age-based behavioural changes. Developmental psychologists are interested in the emotional, intellectual and moral development of people throughout their life-span, looking at everything from the age infants first respond to specific

stimuli to the behavioural changes which occur in the elderly. It is also concerned with the physical and social development. Here, this unit will introduce you with this new branch of psychology as a discipline and its allied concept along with its broad scope.

1.3 CONCEPT AND MEANING OF DEVELOPMENTAL PSYCHOLOGY

Developmental psychology is the branch of psychology that studies intra-individual and the inter-individual changes that take place within the former. Developmental psychology is also known as human development which is the scientific study of systematic psychological changes that occur in human beings over the course of their life span. This branch of psychology includes issues such as the extent to which development occurs through gradual accumulation of knowledge versus stage like development or the extent to which children are born with innate mental structures versus learning through experiences. Originally, this branch of psychology was concerned with infants and children, it was often called as *child psychology.* As the study of other developmental stages of great changes like-adolescence and adult age and old age were added, it encompasses the entire life span of individual and now it is also referred as *Life-span psychology.* Thus, it can be refereed to such a discipline or area of study which examines human developmental process and transitions from infancy to old age even covering the period before birth. This field has expanded to include entire changes in life.

Developmental psychology is concerned not only with describing the characteristics of psychological changes over time, but also seek to explain the principles and internal workings underlying these changes. Developmental psychology directly deals with growth of human being towards their potential. Development describes the growth of human being throughout the life. Scientific study of human development seeks to understand and describes how and why individual people change their life. This includes all aspects of human growth including physical, emotional and social as such personality development. As stated by Hurlock,

developmental psychology have six major objectives-

- To find out what are the common and characteristic age changes in appearance in behaviour, in interest, and in goal from one developmental period to another,
- To find out when these changes occur.
- To find out what causes them,
- To find out how they influence behaviour,
- To find out whether they can or cannot be predicted and
- To find out whether they are individual or universal.

Developmental psychologists investigate key questions such as whether children are quantitatively different from adults or simply lack experiences that adults draw upon. Developmental psychology deals with the ways and methods that personality, behavioural change of an individual's life span with a specific concentration on childhood development. It is important to note here that, developmental psychologists who study children's' behavioural changes rely more upon careful observation in natural setting than upon laboratory experiments. In the upcoming units, different methods of studying Development will be made.

Defining Developmental Psychology:

Elizabeth B. Hurlock defined developmental psychology as the branch of psychology that studies intra-individual changes and inter-individual changes within those intra-individual changes. Its task is not only description but also explication of age-related changes in behaviour in terms of antecedent consequent relationship.

According to **George Butterworth and Margaret Harris**, Development psychology is concerned with the scientific understanding of age-related changes in experience and behaviour. Although most developmental theories have been specifically concerned with children, the ultimate aim is to provide an account of development throughout the life-span. The task is to discover, describe and explain how development occur, from its earliest origin into adulthood and old age".

These definitions establishes developmental psychology as a branch which examines changes across a broad range from motor skills to other psychophysical development involving cognitive areas like- problem solving,

moral understanding, self-concept and identity formation leading to development of personality. Developmental psychology is the branch of psychology that are concerned with the study of progressive behavioural changes that occurred in man from birth till death. It deals with the ways or methods that personality, behavioural changes of an individual's life span *with a specific concentration on childhood development*.



LET US KNOW

- Development Psychology complements several other basic research fields in psychology including social psychology, cognitive psychology, ecological psychology and comparative psychology.
- ***Development psychopathology*** is a concept which deals not only with the disordered development in childhood but also in abnormal individual over their lifetime.
- Child psychology is one of the many branches of psychology and one of the most frequently studied speciality area which focuses on the mind and behaviour of children from prenatal development through adolescence.



CHECK YOUR PROGRESS

Q 1: State the definition given by Hurlock on Developmental psychology.

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Q 2: Why developmental psychology was earlier known as child psychology?

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Q 3: What are the major objectives of developmental psychology according to Hurlock?

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.....

1.4 CONCEPT OF GROWTH AND DEVELOPMENT

As discussed in the above section, developmental psychology is also known as human development which focuses on the extent to which development occurs in individual throughout his life. Development describes the growth of human being throughout the life. Developmental psychology directly deals with growth of human being towards their potential. Hence, growth and development are two concepts that are associated with Developmental psychology. Both deals with changes brought to an individual, but there are difference in the nature of change. In your previous semester, you have already come across these two concept and how they are significant in the field of education. Still, let's get reacquaint with these two concepts for better understanding of the developmental psychology as an important area in the field of psychology.

Concept of Growth:

The term growth is the quantitative aspect of changes. It is purely physical that implies the changes related to height, size, length and weight etc. in the child. It indicates the enlargement of cells, fibres and muscles, elongation of the skeleton and increase in the general volume of the body parts and body organs. Growth is natural tendency with all organism. It is a sign of take. All living animals, irrespective of their status in the biological hierarchy, have to grow. Growth is measurable and observable. One of the significant fact regarding growth is that it does not continue throughout life, it stops only when maturation is achieved by the particular individual. *Growth is part of development but, growth may or may not bring development.* A child may grow in terms of weight, size, height, length with normal physical growth but may lack his physical and social development. The pattern of growth is not uniform, it differs from child to child. Each child grows in his unique way. It includes functional change. As such it covers both maturation and learning. Growth brings about perceptible changes in one's structure and form. ***L. D. Crow and A. Crow (1962)*** suggested that growth refers to structural and physiological changes, and development is concerned with growth as well as those changes in behaviour, which result from environment situations.

Characteristics of Growth:

- Growth is quantitative in nature. It refers to the increase caused by the biological process in which the organism becomes bigger in size and volume.
- Growth follows a definite pattern.
- Though the pattern of growth is uniform, it differs from child to child.
- Growth does not always contribute to development.
- Growth does not continue throughout the life. It stops when maturity has been attained.
- The growth produced by growth are the subject of measurement. They are observable in nature.
- Growth is one of the part of developmental process, in strict sense development in its quantitative aspect is termed as growth.
- The speed of growth is not same all the time. Different aspects of growth develop at different rate of speed.
- Growth is characterized by fluctuation.

Concept of Development:

The term development means a progressive series of changes that occur as a result of maturation and experiences. It refers to overall changes in the individual growth in one of its parts. According to ***Van Den Daele***, development implies qualitative change. In the words of ***E. B. Hurlock*** "Development means a progressive series of changes that occur in an orderly predictable pattern as a result of maturation and experience." This means that development does not consist merely of adding inches to one's height or improving one's ability. In contrast to it is a complex process of integrating many structures and functions resulting from maturation and learning. Development is indeed a product of maturation and learning. Two essentially antagonistic processes take place in development since birth. One is growth, another is involution. Thus, growth is an essential part of development. The goal of developmental change is to enable the individual to adapt to the environment in which they live. The wider concept of development indicates advancement, more unfoldment, a progressive change a sort of growing forward to a greater maturity. It is a process of

qualitative transformation which brings about maturity and functional improvement. Development is growing up characteristically. It is related to growth in as much as that it denotes more specifically the changes in the character and efficiency of the organ and organ system. According to ***Benedek***, "Development is a process in which the internal physiological changes and the psychological processes stimulated by them are integrated or responded to in a way which enables the individual to mater further and a new environmental stimulation".

Characteristics of Development:

- Development is the product of maturation and learning.
- Development is a process of qualitative transformation.
- Development follows a definite and predictable pattern.
- Development has some phases, each phase of development has characteristic behaviour.
- Development is aided by stimulation.
- All individual are different, and their development takes different courses.
- Development is a continuous process, it goes from womb to tomb.
- Development depends on both heredity and environment.
- Development has four basic elements-growth, maturation, experience and social transmission.
- Development is gradual. It takes time
- Development follows a sequence.
- Early development is more critical than later development.



LET US KNOW

Developmental task serve three very useful purposes-Firstly, the developmental task are guidelines that enable individual to know societal expectation at given phases or ages.**Secondly,** developmental tasks motivates individuals to do what the social group expects them to do at certain ages during their lives.**Thirdly,** developmental tasks shows individuals what lies ahead and what they will be expected to do when they reach their next stage of development.

1.4.1 Relationship between growth and development

Development and growth are commonly, used to convey the same meaning. Both are interrelated. Growth is one of the part of developmental process. As such, development in its quantitative aspect is termed as growth. Though these two are used interchangeably, but there is a great difference. According to ***J. E. Anderson (1950),*** "Development does not consist merely of adding inches to one's height or improving one's ability. Instead, development is a complex process of integrating many structures and functions." whereas, growth is quantitative in the sense that it can be measured in inches, points and dynes, marked by structural changes in organism.

Difference between Growth and Development

Sl No	Growth	Development
1	The term growth is generally used in purely physical sense. It refers to the increase caused by biological process in the organism.	Development indicates advancement, more unfoldment a progressive change in organism.
2	Changes in the quantitative aspects come into the domain of growth.	It indicates the changes in quality or character rather than quantitative aspects.
3	Growth is a part of developmental process. Development in quantitative sense is termed as growth.	Development is comprehensive. It includes overall changes.
4	Growth does not continue throughout life. It stops when maturity has been attained.	Development is a continuous process. It grows from womb to tomb. It does not end with the attainment of maturity. The changes, however small they may be, continue throughout the life span of an individual.

5	The changes produced by growth are the subject of measurement. They may be quantified.	Development brings qualitative changes, which are difficult to be measured directly. They are assessed through keen observation in behavioural situations.
6	Growth may or may not bring development. A child may grow (in terms of weight) by becoming fat, but this growth may not bring any functional improvement in terms of qualitative change or development.	Development is also possible without growth as we see in the cases of some children that they do not gain in terms of height, weight or size, but they do experience functional improvement or development in physical, social, emotional or intellectual aspects.
7	The pattern of growth is not uniform, it differs from child to child.	Development follows a sequential pattern**.**
8	Growth is most rapid during the early years of development.	Development is gradual process.
9	Growth is observable in terms of quantitative change in organism.	Development is quantitative change in organism which is not a subject to direct observation.
10	Growth is the progressive increase in the size of a child or part of a child.	Development is progressive acquisition of various skills and functions.



CHECK YOUR PROGRESS

Q 4: Define development.

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Q 5: State two characteristics of growth and development each.

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Q 6: Differentiate between growth and development.

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1.5 SCOPE OF DEVELOPMENTAL PSYCHOLOGY

While discussing the scope of any discipline or branch, it indicates the area of study of field of study by that particular branch or discipline. Developmental psychology is the scientific study of systematic psychological changes that occur in human beings over the course of their life span. Thus, it tends to cover all those psycho-physical changes that occur in an individual throughout his/her life. Indeed, the developmental psychology is also considered as life-span psychology. Hence, its scope is broad and beyond the limit of any particular stage or period of development. This section of this unit deals with the areas of study by developmental psychology.

A. Growth and Development: The most thrusted area of developmental psychology is growth and development. It studies the process, facts associated with the individual growth and development that take place in individual since the time of conception throughout his/her life. It studies how growth and development take place differently in different individual with different rate, what are the factors that may affect growth and development.

B. Different aspect of development: Developmental is one of the significant area of study under the scope of developmental psychology. Development does not confine to the physical development in a child or man. It covers their overall progressive change in terms of functionality which covers their mental or cognitive, social, language, moral, emotional development in man in different developmental phases of life throughout the life.

C. Developmental phases: We very well know that growth and development take place in individual differently in different developmental phases of human life. Different psychologists had given different categorization of developmental phases of human life covering from conception to old age on the basis of their intensive study. The

most commonly accepted phases of human life are-pre-natal period, infancy, childhood, adolescence and adulthood, which may have again sub-categorization. Study of different psycho-physical changes during these phases are covered by developmental psychology. It studies the variation between individuals in the rate of their development and progression from one phase to another.

D. Theories of Development: Theories of development are another thrust area of developmental psychology. Developmental psychology is concerned not only with describing the characteristics of psychological change over time, but also seeks to explain the principles and internal workings underlying changes. Many theoretical perspectives attempts to explain development. Among them the most prominent theories of developmental psychology are- Jean Piaget's Stage theory, Lev Vygotsky's Social Contextualism Theory, Erik Erikson's Eight stage of psychosocial development theory etc.

E. Mechanism of Development (Nature vs Nurture): Though developmental change runs parallel with chronological age, age itself cannot cause development. The basic mechanisms or causes of development change are genetic factors and environmental factors. Genetic factors are responsible for cellular change like overall growth, changes in proportion of body and brain parts, and the maturation of aspects of function such as vision and dietary needs. Environmental factors affecting development may include both diet and diseases exposure as well as social, emotional and cognitive experiences.

F. Developmental Hazards: Another area of study under the scope of developmental psychology is developmental hazards. Growth and development take place in individual as per the law of nature, but the child or the individual may face different hazards associated with the development in different stages of growth and development, particularly in the early developmental stage of life. Developmental psychology deals with these hazards and its associated causes.

G. Development and Maturation: Developmental changes also includes change brought due to maturation. It is the change which is biological

in nature and which is due to our genetic endowment. Maturational changes in our body or behaviour are primarily due to the ageing process rather than learning. Development is indeed the product of experience and maturation. Developmental psychology includes this as one of the significant area of study.



1.6 LET US SUM UP

After going through this unit, it can be summarized as-

- Developmental psychology is the branch of psychology that studies intra individual and inter individual changes within these intra individual changes.
- Originally, this branch of psychology was concerned with infants and children, it was often called as *child psychology.*
- Developmental psychology is concerned not only with describing the characteristics of psychological changes over time, but also seek to explain the principles and internal workings underlying these changes.
- Growth and development are two concepts that are associated with Developmental psychology.
- The term growth is the quantitative aspect of changes. It is purely physical that implies the changes related to height, size, length and weight etc. in the child.
- L. D. Crow and A. Crow (1962) suggested that growth refers to structural and physiological changes, and development is concerned with growth as well as those changes in behaviour, which result from environment situations.
- The term development means a progressive series of changes that occur as a result of maturation and experiences.
- According to E. B. Hurlock “Development means a progressive series of changes that occur in an orderly predictable pattern as a result of maturation and experience”

- Growth and development are used interchangeably, but there is a great difference.
- The term growth is generally used in purely physical sense. It refers to the increase caused by biological process in the organism whereas, development indicates advancement, more unfoldment a progressive change in organism.
- The developmental psychology is also considered as life-span psychology. Hence, its scope is broad and beyond the limit of any particular stage or period of development.



1.7 FURTHER READING

1) Ahlawat Neetu(2010): Developmental Psychology, RBSA Publisher, Jaipur.
2) Dash B.N (2011): A textbook of Educational Psychology, Dominant publishers and distributors' pvt. Ltd.
3) Hurlock Elizabeth B (1980): Developmental Psychology: A life-span Approach, Mc Graw Hill Companies, Inc., New York.
4) Singh Punam (2011): Developmental Psychology, Centrum Press, New Delhi.



1.8 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: Elizabeth B. Hurlock defined developmental psychology as the branch of psychology that studies intra-individual changes and inter-individual changes within those intra-individual changes. Its task is not only description but also explication of age-related changes in behaviour in terms of antecedent consequent relationship.

Ans to Q No 2: Earlier, developmental psychology was concerned with infants and children, therefore, it was often called as child psychology.

Ans to Q No 3: According to Hurlock, developmental psychology have six major objectives-

- To find out what are the common and characteristic age changes in appearance in behaviour, in interest, and in goal from one developmental period to another,
- To find out when these changes occur.
- to find out what causes them,
- to find out how they influence behaviour,
- to find out whether they can or cannot be predicted and
- To find out whether they are individual or universal.

Ans to Q No 4: According to Benedek, "Development is a process in which the internal physiological changes and the psychological processes stimulated by them are integrated or responded to in a way which enables the individual to mater further and a new environmental stimulation".

Ans to Q No 5: Characteristics of Growth:

- Growth is quantitative in nature. It refers to the increase caused by the biological process in which the organism becomes bigger in size and volume.
- Growth follows a definite pattern.

Characteristics of Development:

- Development is the product of maturation and learning.
- Development is a process of qualitative transformation.

Ans to Q No 6: Growth and Development can be differentiated in terms of- Growth is a part of developmental process. Development in quantitative sense is termed as growth but, Development is comprehensive. It includes overall changes.



1.9 POSSIBLE QUESTIONS

A. Short Questions (Answer each questions in about 150 words)

Q 1: Write your perception on developmental psychology.

Q 2: Describe the definition of Hurlock on developmental psychology.

Q 3: How growth and development are interrelated?

Q 4: What is the difference between child psychology and developmental psychology?

B. Long Questions (Answer each questions in about 300-500 words)

Q 1: Differentiate between growth and development.

Q 2: Describe the scope of developmental psychology.

Q 3: How the knowledge of developmental psychology can help the teachers and parents in upbringing the future generation? Give your views.

*** ***** ***

UNIT 2 : HISTORY OF DEVELOPMENTAL PSYCHOLOGY

UNIT STRUCTURE

2.1 Learning Objectives

2.2 Introduction

2.3 History of Developmental Psychology

2.4 Definition and Concept of Lifespan

2.5 Stages of Life Span

2.5.1 Principles of Human Development

2.6 Let Us Sum Up

2.7 Further Reading

2.8 Answer To Check Your Progress

2.9 Possible Questions

2.1 LEARNING OBJECTIVES

After going through this unit, you will be able to-

- get acquainted with the history of developmental psychology
- understand the definition and concept of life-span
- comprehend the different stages of life-span
- identify the principles of human development to get familiar with the developmental changes in different stages of life-span.

2.2 INTRODUCTION

The preceding unit has helped you to better acquaint with the basic concept of developmental psychology as an important branch of psychology, its scope and allied concepts. As you are studying about developmental psychology, you must be clear with its historical background and the most basic concept associated with the study of developmental psychology. Developmental psychology is a branch of psychology which makes study about different psycho-physical changes brought to men throughout one's life. As an individual we all experiences different changes in life through

different stages of life. Characteristics accompanied by these stage differs from one another. We are not the same person we were in our childhood or in our adolescence period. As a learner of developmental psychology, you all must be clear with these stages and how changes take place through these stages. This unit will deal with those stages of our life, which is going to be not only interesting and but exciting too to study.

2.3 HISTORY OF DEVELOPMENTAL PSYCHOLOGY

Human development is a natural process. Every one of us is being is influenced and controlled by this process. We cannot deny the natural process of human development. Developmental psychology is a scientific study of human development. Hence, it is also known as human development psychology. As already mentioned in the preceding unit, initially, developmental psychology was refereed as child psychology as developmental psychology was primarily concerned with child and adolescent development. Later, adult development and aging began to assume more importance under its umbrella, and came to known as developmental psychology. Studying about human development is the concern of many disciplines, including biology, sociology, anthropology, education, and medicine. Developmental psychology is concerned with change in psychological functioning in men over the life span.

If we try to trace the historical background of Developmental psychology, we must remember the name of Confucius (551-479BC), Plato (427-347BC), and Aristotle (384-322BC) who had contributed to the study of human development through their rich psychological tradition. In the seventeenth century, John Amos Comenius strongly felt that children should be studied not as embryonic adult but in their essential child nature so as to understand their capacities and how they deal with the changes. From a philosophical perspective, John Locke (1632--1704) and Jean-Jacques Rousseau (1712-1778) are the usual starting points for Western discussions of development. The first scientific record of development of young child was by Pestalozzi on his own son (Three and a half year old) and the record was published in 1774. It is important to note that in his famous book Emile,

Rousseau described three stages of human life-Infants (referring infancy) Puer (referring childhood) and Adolescence period of human life.

The theory of evolution by **Charles Darwin** (1809-1882) was the starting point for many Western developmental psychologists, both European and American. The famous article of Darwin –"**Biographical Sketch of an infant**" published in 1877 gave a detailed and careful observation of behavior and development of an infant. In addition, Darwin's emphasis on individual differences and adaptation became important components of developmental psychology.

Moreover, **"Baby biographies,"** were used as early attempts to understand developmental descriptive accounts of children, usually written by a parent, and often biased. The German philosopher, Dietrich Tiedemann (1748-1803) is credited with creating the first baby biography (1787). Hundred years later, another German biologist Wilhelm Preyer (1841-1897), kept a detailed account of the mental development of his son during his first four years. He published the results as Die Seele des Kindes (The Mind of the Child) in 1882. *Many educationists wanted to mark it as the start of developmental psychology as a separate discipline*. The best known and the most thorough of the early American studies was Milicent Shinn's(1858-1940) **Biography of a Baby** based on her observation of her niece from birth to first year of life.

Among the many contextual forces which contributed to the rise of developmental psychology, the **child study movement** was the most important. This movement emerged during the latter part of the nineteenth century. It focused on the welfare of children and, among other things, helped to bring about the passage of laws governing child labor and compulsory education. Its leadership was assumed by **G. Stanley Hall**. Hence, he is considered as *father of the child study movement*. In 1891, Hall published the first journal of developmental psychology, Pedagogical Seminary, later renamed the Journal of Genetic Psychology. Besides, Adolescence (1904) and Senescence (1922) were his two significant book on development. He is also called the *"father of American developmental psychology."*

The 19th century key figure who contributed towards the developmental study are-Jean, Piaget, Lev Vygotsky, John Boulby, Watson, Sigmund Freud, Arnold Gesell are worth mentioning. Developmental psychologists are making constant study of the natural process of growth and development and the scope of it is increasing day by day. As a discipline, it arose shortly after the emergence of scientific psychology in the latter part of the nineteenth century. Its antecedents were different from those that led to the founding of experimental psychology.



LET US KNOW

German biologist Wilhelm Preyer (1841-1897), kept a detailed account of the mental development of his son during his first four years. He published the results as Die Seele des Kindes (The Mind of the Child) in 1882. Many educationists wanted to mark it as the start of developmental psychology as a separate discipline.



CHECK YOUR PROGRESS

Q 1: What are the stages of development according to Rousseau as mentioned in his book Emile?

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Q 2: Name the two famous books by Stanley Hall written on Development.

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Q 3: Who wrote the first Baby Biograph?

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2.4 DEFINITION AND CONCEPT OF LIFE SPAN

Human life is full of variety of experiences and explorations. Life of human being starts with the conception in the womb of the mother. It is a transitional process. Throughout life, an individual exhibit typical behavioral characteristics in all the dimensions of behavior and personality. Life span is the ongoing process that we go through while growing up**.** It is the period of time between the birth and death of an organism. Lifespan Development refers to the full process of human development from conception to death. The concept of life span implies that there is an individual whose existence has a definite beginning and end. It is a holistic approach to understand all of the physiological, cognitive, emotional, and social changes that people go through. Life-span simply means the average duration of existence of an individual in a particular environment or under specified circumstances. Life-span development refers to the pattern of change that begins at conception and continues through the one's life cycle. Lifespan development can be defined as a methodical, intra-individual change associated with progressions corresponding to age. The development progresses in a manner implicating the level of functioning.

According to **Baltes, (1987),** Life-span developmental psychology is the field of psychology that involves the examination of both constancy and change in human behavior across the entire life span, that is, from conception to death.

According to **Educational Foundation (2001),** life span development is a process beginning at conception that continues until death. The progression initiates with the emergence of a fetus from a one-celled organism. As the unborn child enters the world, the environment in which the child exists begins to influence the child's development.

Life span development includes issues such as the extent to which development occurs through the gradual accumulation of knowledge versus stage like development, or the extent to which children are born with innate mental structure versus learning through experiences.

2.5 STAGES OF LIFE SPAN

Human development periods span the lifetime from conception to the end of life. Across life-span, people develop in stages. When we examine the sequence of changes over the entire life-span we find broad patterns in different phases of life. These stages are broad pattern of development characterized by some dominant feature. In each stage of development, a person shows typical capabilities, pattern of behavior and characteristics modes of functioning. Each period has certain important tasks to accomplish by the individual and depending on the success or completion of the tasks, the movement to the next stage of development take place

Various theories attempt to define how the movement from one level to the next level of development occurs. Educators and psychologists have pointed at different ways of describing stages of development in the life span of an individual. Psychologists vary in their view regarding the classification of human stages. Some justify it as five stages, whereas other want to categorize life span as nine or seven stages and so on based on developmental characteristics. Here, we are out forwarding some of the classification of life –span as classified by renowned psychologists or thinkers-

A. Rousseau's Classification of Stages of Development: The earliest effort at marking out the stages of development was made by Rousseau. He attempted to divide the individual's development into four stages as given-

	Stage of Life-span	**Period**
1	Infancy	1 to 5 years
2	Childhood	Between 5 to 12 years
3	Pre Adolescence	12 to 15 years
4	Adolescence	15 to 20 years

B. E.H. Erickson's Eight Stages of Human Development: Famous Psychoanalyst Erickson tried to classify human development into eight stages on the basis of his psycho-social development theory. The eight stages are-

	Stages	Period
Stage I	Infancy	Birth to 1 and a half year
Stage II	Toddler Age	1 and a half year to -3 years
Stage III	Preschooler Age	3-6 years
Stage IV	School –Age	6-12 years
Stage V	Adolescence	12-20 Years
Stage VI	Early Adulthood	20 to 45 years
Stage VII	Middle Adulthood	45 to 65 years
Stage VIII	Later Adulthood	65 years onwards

C. Celley's Classification on human development: Celley had classified human life-span development into three categories-

	Stages	Period
1	Infancy	1 to 5years
2	Childhood	5 to 12 years
3	Adolescence	12 to 18 years

D. James Ross's Classification: James Ross had classified human development into following five stages-

	Stages	Period
1	Infancy	Birth to 3 Years
2	Early Childhood	3 to 6 years
3	Later childhood	6 to 12 years
4	Adolescence	12 to 18 years
5	Adulthood	18 years onwards

E. Jean Piaget's Development Stages: Piaget, a Swiss educator on account of his biological background traced the initiation of human cognitive development and classified the human intellectual development into four developmental stages -

	Stage	Period
1	Sensory-Motor Stage	Birth to Two years
2	Pre-Operational Stage	2 years to 7 years
3	Concrete Operational Stage	7 to 11 Years
4	Formal Operational Stage	12 to 15 years

F. Dr. Earnest Classification on Human Life Developmental Space:

	Stage	Period
1	Infancy	1 to 5 years
2	Late Childhood	6 to 12 years
3	Adolescence	12 to 18 years
4	Maturity	18 years onwards

Thus, we find that there are variation in the classification of life-span of human. Psychologists have classified human development on the basis of different developmental dimensions and characteristics. There are certain common developmental or practical characteristics belonging to each stage. The human organism shows peculiar quantitative and qualitative changes in his body and behavior with the help of which we can say at what particular age an individual belongs to which definite stage of his life. The process of development involves the interaction of biological, cognitive and social-emotional processes. But, for our better understanding and convenient discussion, the life-span of individual is classified into the following common stages according to growth and development-

Stage I: Pre-Natal Period (From Conception to Birth)

Stage II: Post-Natal period (From birth to death)

Stages under Post-Natal period—

1. Neo-Natal Period (Birth to 10-14 Days) o
2. Babyhood or Toddler (Two Weeks to 2 Years)
3. Early Childhood or Stage of Pre-school aged (2 years to 6 Years)
4. Late Childhood or stage of School Aged child (6 years to 12-13 Years)
5. Adolescence (From 12 years to 18 Years)
6. Adulthood (18 years to 60 years)
7. Old Age or Aging (From 61 years till death)

Let's discuss the stages of life in brief under two primary stage of pre-natal and stages under post-natal-

Stage I: Pre-Natal Period (From Conception to Birth)

Pre-natal stage refers to the period of development before birth. It is a period that ranges from the time of conception to birth. The period approximately lasts for about 280 days. During this period, development is

extremely rapid. It is mainly physiological and consist of the growth of all the bodily structure. Pre-natal development is of interest to psychologists investigating the context of early psychological development. This is the period, during which individual develops from a single cell to a fully developed organism. The development from conception till birth of a baby constitute the prenatal stage, although babies are not born exactly after 280 days of conception. Biologically, it takes about 266 days from conception for a fetus to become ready for birth process. Actual birth of normal baby may take place any time after that. The pre-natal development of human is viewed in three separate stages-

1. Germinal Stage: The range of this period is conception to 2 two weeks.
2. Embryonic Stage: The range of this period is three week to eight week.
3. Fetal Stage: It ranges from week 9 to time of birth.

The detail about this period will be covered by unit 5.

Stage II: Postnatal period begins immediately after the birth of a child. During this period the mother's body returns to pre-pregnancy conditions as far as uterus size and hormone levels are concerned. The word Postnatal is derived from a Latin word which means 'after birth', again, from post meaning "after" and natalis meaning "of birth". It is the period beginning immediately after the birth of a child and extending for about six weeks. But the stages of post-natal development covers the stages from-neo-natal till death. Another term would be postpartum period, as it refers to the mother, whereas postnatal refers to the infant.

The following are the stages of post-natal development-

1. Neo-Natal Period (Birth to 10-14 Days)

This is the period of the newborn or the neonate. During this period, an infant try to adjust to a totally new environment outside the mother's body. At this stage, the organism goes through a sensorimotor development through contacts with external world. The details of this period will be discussed in unit 6.

2. Babyhood or Toddler stage (Two Weeks to 2 Years)

Babyhood stage is also termed as infancy period. From birth until the child begin to speak, they are referred as an infant. The word, infant

is derived from the Latin word-*infans* which means unable to speak. When the human child learns to walk, the term toddler is used. The period from two week to two years constitute the infancy stage of life. Babyhood period marks the transition from a purely reflective function organism to a psychological organism. At first babies are completely helpless and during the first six weeks he/she spends most of the time in sleeping. When he is awake, however he engages himself in active interaction with the environment. This interaction serves to stimulate the psychological and social development in the infants. Gradually the infant learns to control his muscles so that he can become increasingly self-reliant. Babyhood is the period, in which he gains control over his bodily movement and he learns to speak. The details of this period will be covered by unit 7 and unit 8.

3. **Early Childhood or Stage of Pre-school aged (2 years to 6 Years)**

Early childhood is also known as pre-school period. When children go to pre-school, they broaden their social horizons and become more engaged with those around them. Broadly it covers the period from 2 to 6 years. This is the time during which the children become mobile, he is able to widen the sphere of his/her activities beyond the caregivers and the family. Through interaction with the wider society and the environment the child learns the rules of appropriate social behavior and develops mental abilities which prepare him/her for formal schooling. Children starts using short sentences and learns to explore and control his surroundings. The child incessantly ask questions, makes friends with his peer group. Hence, this period is also termed as pre-gang age. Details about the developmental characteristic of this stage will be discussed in unit 9.

4. **Late Childhood or Stage of School Aged child (6 years to 12-13 Years)**

This is the formal schooling age. Hence, it is also called stage of School Aged child. During this period, children go through the transition from the world at home to that of school and peers. Children learn to make things, use tools and acquire the skills to be a worker and a

potential provider. Children receive feedback from outsiders about their accomplishment. The major development in this stage is building up friendship and socialization. During this stage, growth becomes more gradual and rate of physical change becomes slower until puberty at about 12-13 years when there is again a rapid growth spurt. Details about the developmental characteristic of this stage will be discussed in unit 10.

5. Adolescence (From 12 years to 18 Years)

This is the transitional period from childhood to adulthood. It is the period from the onset of puberty till attainment of adulthood. The word-Adolescence has been derived from Latin word –*adolescere* which means –*to grow* or *to grow to maturity*. As such the essence of the word adolescence is growth and it is in this sense that it represents a period of intensive growth change in nearly all aspects; of individual's development. Puberty marks the beginning of sexual maturity and reproductive capacity of an individual. As such with the occurrence of sexual maturity adolescence begins. This is the period of physiological upheaval especially sexual maturation. In the later adolescence period, there is increased heterosexual interest and concern for personal appearance and the desire to make a good impression on others. The peer group has greater influence in this period than the home and they desire for independence. During this period, the individual becomes ready for adulthood and family life. This period is known for the formation of personal and social identity and discovery of moral purpose. Unlike the childhood, adolescence is the stage in which intelligence exists in logical form of demonstration. Details about the developmental characteristic of this stage will be discussed in unit 13.

6. Adulthood (18 years to 60 years)

This is the stage of complete maturity. Identity versus role confusion is coming to an end in this stage. The individual learns how to form intimate relationship both in friendship and love. The development of this skill relies on the resolution of other stages. The young adult becomes a fully functioning social being assuming the role of a married

family person and developing intimate social and sexual relationship. Although most of the physical development is over by the end of adolescence period, some development do occur during the early part of adulthood period.

The later part of adulthood which is often termed as middle adulthood refers to the period between ages 40 to 60. During this period, the middle-aged experience a conflict between generativity and stagnation. They may either feel a sense of contributing to the next generation and their community. Physically, the middle aged experience a decline in muscular strength, reaction time, sensory keenness. Especially women experience menopause and a sharp drop in the hormone estrogen. Middle age is called as "Shrinking circle stage" of family life because the most important change at this time is reduction of family members living under the same roof.

7. Old Age or Aging (From 61 years till death)

The period of life from 60 till death is the period of old age. Now-a days, with increasing life expectancy and longer work period there is a delayed onset of the actual feeling of old age. During this period, people experience a conflict between integrity versus despair. It denotes to the feeling of sense of accomplishment or failure when they reflect their life. Besides retirement from active work life, the old people have to cope with many other challenges such as their own declining physical fitness, ill health, and death of dear and near ones in the family including possible loss of spouse leading to loneliness. There are wide individual variation in the way old people prepare to face death and other challenges associated with the age. Changes in recreational activities in old age are due to changes in health and mental status.

The development of individual take place throughout these mentioned stages of life. Development is a continuous process. It starts with the pre-natal period and continues till the death of an individual. Each stage is unique in its developmental traits and sequence. Individual difference is too common in each stage of

development. The further units will help you to go in depth of these stages and help you to understand the beautiful journey of men from womb to tomb.



CHECK YOUR PROGRESS

Q 4: Define life-span development.

.....

.....

Q 5: What are the stages of development as classified by Jean Piaget?

.....

.....

Q 6: Fill in the Blanks-

a) The Word Infant had been derived from .....

b) The Word adolescence had been derived from .....

c) The Middle age is called as .....

2.5.1 Principles of Human Development

Development is a continuous as well as systematic process of bringing changes in men. It just does not occur. It follows some procedures. If you want to know how developmental changes take place in men through the different stages of life-span, you must be clear with its procedure. The knowledge of principles of growth and development will help you to be better acquainted with the process-

- **Principle of Continuous Development**: First of all, development is a continuous process. Development follows continuity. It goes from womb to tomb and never ceases. An individual starting his life from a tiny cell develops his body, mind, and other aspects of his personality through a continuous stream of development in various dimensions.
- **Principle of Change:** The life of an individual is dynamic in nature. It is never static. From the moment of conception to the time of death, it undergoes no. of changes. At each stage

of human development, change take place.

- **Rate of Growth and Development is not uniform**: Although development follows continuity, yet the rate of growth and development is not steady and uniform at all times. It proceeds more rapidly in the early years of life but slows down into later years of infancy. Again, at the dawn of puberty, there is a sudden rise in the speed of growth and development, but it is not maintained for long. Therefore, at no stage, the rate of growth and development show steadiness. It rather takes place by fits and starts.
- **Principle of Individual Difference**: According to this principle, there exist wide individual differences among the children with respect to their growth and development in various dimensions. Each child grows at his own unique rate.
- **Principle of Uniformity of Pattern**: Although development does not proceed at a uniform rate and shows marked individual differences, yet it follows a definite sequence or pattern somewhat uniform in the offspring of a species. For example, all offspring of human beings begin to grow from head downwards. Similarly, the motor development and language development in all children seems to follow a definite sequence.
- **Development Proceeds from General to Specific:** In all phases of child's development, the general activity precedes specific activity. His responses are of a general sort before they become specific. For example, the boy waves his arms in general which is a random movement before he is capable of so specific a response as reaching. Similarly, when a newborn infant cries, the whole of the body is involved. With growth, crying is limited to the vocal cords, eyes etc. In language development, the child learns general words before specific. He uses the word daddy in greeting many men, and it is only afterwards that he uses it for his father.

- **Principle of Integration**: Where it is true that development proceeds from general to specific or from whole to parts, it is also seen that specific responses or part movements are combined in the later process of learning or development. It is the integration of whole and its parts as well as of the specific and general responses that make a child developed satisfactorily in the various dimensions of his growth and development.
- **Principle of Interrelation**: The growth and development in various dimensions like physical, mental, social etc. are interrelated and interdependent. Growth and development in any one dimension affects the growth and development of the child in other dimensions. For example, children with the above-average intelligence are generally found to possess above-average physical and social development. The asset of growth in one dimension diminishes the bright possibility in other dimensions. That is why, the child having poor physical development tend to regress in emotional, social and intellectual development.
- **Principle of Prediction:** With the help of the rate of growth and development of a child, it is possible for us to predict the range within which his mature development is going to fall. For example, X-rays of the bones of the wrist of a child will tell approximately, what his ultimate size will be. Similarly, the knowledge of the present mental ability of a child will help in predicting his ultimate mental development.
- **Interaction between Heredity and Environment:** The individual is the product of interaction between his heredity and environment. However, genes are important in determining the rate and quality of his growth and development, his social and cultural environment, physical surroundings and the emotional climates will have their own impact.
- **Principle of Interaction of Maturation and Learning:** Growth

and development occur because of both maturation and learning. Maturation refers to change in a development organism due to the unfolding and ripening of abilities, characteristics, traits and potentialities present at birth. Learning denotes the changes in behavior due to training and/ or experience. Maturation and learning are interacting.



2.6 LET US SUM UP

After going through this unit, it can be summarized as-

- History of developmental psychology is marked by the work of Confucius (551-479BC), Plato (427-347BC), and Aristotle (384-322BC).
- From a philosophical perspective, John Locke (1632--1704) and Jean-Jacques Rousseau (1712-1778) are the usual starting points for Western discussions of development.
- Rousseau described three stages of human life-Infants (referring infancy) Puer (referring childhood) and Adolescence period of human life in his famous book Emile.
- The theory of evolution by Charles Darwin (1809-1882) was the starting point for many Western developmental psychologists, both European and American.
- German biologist Wilhelm Preyer published his baby biography as Die Seele des Kindes (The Mind of the Child) in 1882. Many educationists wanted to mark it as the start of developmental psychology as a separate discipline.
- Child study movement during the latter part of the nineteenth century contributed towards the development of the discipline. Its leadership was assumed by G. Stanley Hall. Hence, he is considered as father of the child study movement.
- Life span is the ongoing process that we go through while growing

up. It is the period of time between the birth and death of an organism.

- Life-span development refers to the pattern of change that begins at conception and continues through the one's life cycle.
- Human development periods span the lifetime from conception to the end of life.
- Various theories attempt to define how the movement from one level to the next level of development occurs. Educators and psychologists have pointed at different ways of describing stages of development in the life span of an individual.
- But, for our better understanding and convenient discussion, the life-span of individual is classified into the following common stages according to growth and development-Stage I: Pre-Natal Period (From Conception to Birth), Stage under post-natal are- I: Neo-Natal Period (Birth to 10-14 Days), Stage II: Babyhood or Toddler (Two Weeks to 2 Years), Stage III: Early Childhood or pre-school stage (2 years to 6 Years) Stage IV: Late Childhood or school stage(6 years to 12-13 Years), Stage V: Adolescence (From 12 years to 18 Years), Stage VI: Adulthood (18 years to 60 years) and Stage VII: Old Age or Aging (From 61 years till death)
- Each stage is unique in its developmental traits and sequence. Individual difference is too common in each stage of development.
- Development just does not occur. It follows some procedures. The knowledge of principles of growth and development help us to be better acquainted with the process. Some of the principles are- principle of Continuous Development, principle of Change, and principle of Individual Difference etc.



2.7 FURTHER READING

1) Dash B.N (2011): A textbook of Educational Psychology, Dominant publishers and distributors' pvt. Ltd.

2) Chetry Krishna Kumari (2016): Developmental Psychology, Ashok Book Stall, Panbazar, Ghy.

3) Goswamee Gayatree (2008): Child Development and Child Care, Arun Prakashan, Guwahati, Assam.

4) Mangal S.K (2006 2nd Edition): Advanced Educational Psychology, Published by Asoke K Ghosh, Prentice Hall of India Private Limited, New Delhi.

5) Singh Punam (2011): Developmental Psychology, Centrum Press, New Delhi.



2.8 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: Rousseau described three stages of human life-Infants (referring infancy) Puer (referring childhood) and Adolescence period of human life in his famous book Emile,

Ans to Q No 2: The two famous book **by G. Stanley Hall** are Adolescence (1904) and Senescence (1922) on development.

Ans to Q No 3: The German philosopher, Dietrich Tiedemann (1748-1803) is credited with creating the first baby biography (1787).

Ans to Q No 4: According to **Baltes, (1987),** Life-span developmental psychology is the field of psychology that involves the examination of both constancy and change in human behavior across the entire life span, that is, from conception to death.

Ans to Q No 5: The stages of development as classified by Jean Piaget are-

Sensory-Motor Stage	Birth to Two years
Pre-Operational Stage	2 years to 7 years
Concrete Operational Stage	7 to 11 Years
Formal Operational Stage	12 to 15 years

Ans to Q No 6: Fill in the blanks-

a) Latin word-*infans*

b) Latin word –*adolescere*

c) "Shrinking circle stage" of family life.



2.9 POSSIBLE QUESTIONS

A. Short Questions (Answer each questions in about 150 words)

Q 1: What is Baby Biography?

Q 2: Why G. Stanley Hall is considered as father of child study movement?

Q 3: Mention the classification of human development as made by Erickson.

Q 4: State briefly the principles of human development.

Q 5: How would you differentiate between childhood and adolescence?

Q 6: Differentiate between pre-natal and post-natal development.

B. Long Questions (Answer each questions in about 300-500 words)

Q 1: Discuss the historical background of Developmental psychology as a separate discipline.

Q 2: Define life-span. Discuss the stages of life-span.

Q 3: How does the knowledge of principles of human development help a laymen to understand the process of life-span?

Q 4: Which is the most crucial stage of life-span according to you and why? Give your views.

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UNIT 3: METHODS OF STUDYING DEVELOPMENT-I

UNIT STRUCTURE

3.1 Learning Objectives

3.2 Introduction

3.3 Importance of Studying Development

3.4 Different Methods of Studying Development

- 3.4.1 Cross sectional Method
- 3.4.2 Longitudinal Method
- 3.4.3 Co-relational Method

3.5 Let Us Sum Up

3.6 Further Reading

3.7 Answer To Check Your Progress

3.8 Possible Questions

3.1 LEARNING OBJECTIVES

After going through this unit, you will be able to-

- understand the importance of studying development
- explain and use different methods of studying development.

3.2 INTRODUCTION

In the First unit, we have discussed about concept and meaning of developmental psychology and allied concept of this branch. Growth and development being the two integral part of developmental psychology, helps us to understand its inherent meaning and how important are they for a full-fledged life. Development as discussed before is a comprehensive term. It is not subject to direct observation and measurable as growth. Studying development is one of the complex as well as systematic task. It requires systematic planning and execution. There are different methods of studying development. This unit deals with those methods of studying development.

3.3 IMPORTANCE OF STUDYING DEVELOPMENT

Before going through the methods of studying development, it is essential for you to comprehend why is it necessary to study development? Developmental psychology is a branch of psychology that studies about all those changes brought by growth and development throughout the life of an individual. Developmental psychology deals with the behaviors that characteristically occur at various ages and stages of development. The behavior of the child varies according to their ages and developmental characteristics which have a great impact on their life. Children do not just grow. They need guidance. Everyone in close contact with children can contribute to their development. The study of development help parents and teachers to plan activities and experiences for their children and to take proper care of them. The significance of studying development can be elaborated under the following headings-

1. **Knowledge of Developmental Pattern:**

   Scientific study about development is significant in letting the parents, teachers and others concerned to know the developmental pattern in an individual. To understand the pattern of development from conception to death, one must have a clear picture of this on the basis of scientific study, not on traditional beliefs and stereotyped ideas.

2. **How and why of Change:**

   Development describes the growth of human being throughout one's life. Scientific and systematic study of human development seeks to understand and describes how and why individual people change throughout their life. The study of development provides the answer to question how and why changes take place in men.

3. **Changes across broad range:**

   The study of development helps to examine changes across a broad range of areas including physical growth and development, cognitive development, psycho-social development, language development, moral and emotional development and so on.

4. Initiate contribution from all:

Intensive study and knowledge of development not only help the teachers, but also the parents, doctors, psychologists, counsellors and all other surrounded by the child to understand the various aspects of growth and development and helps them to contribute towards all round and balanced development of the children.

5. Prevention to hazards:

Adequate knowledge and study of development not only provides adequate information of the all aspects related to growth and development, but also about the different hazards that may arise in the path of development in different children. Knowledge about developmental hazards and its possible causes helps the teachers, parents and other members to take preventive measures to help the children to better adjusted with the developmental changes.

6. Understanding variety in development:

We know that growth and development take place in individual person naturally and following the principles of direction. Still, we witness differences or variety in the process of development letting one individual differ from other in terms of different aspect of development. Study of development helps the parents, teachers and others concerned to understand the individual difference and why it happens.

7. Identifying uniqueness in man:

Study of development not only provides the idea about individual differences, but also develops the ability to recognize individuality in men. This refers to one's ability to recognize and comprehend the uniqueness of each children's traits and his personality as a whole including his/her strength and weaknesses.

8. Knowledge about the factors influencing development:

Development is a continuous and dynamic process starting from the time of conception till the time of death. It brings lots of psycho-physical changes as well as behavioral changes in man throughout his/her life. Various hereditary, environmental factors are involved in the process of development. Study of development helps to understand

how and to what extent these factors are influential in the process of development.

9. **Utilization of best resources:**

Study of development helps as well as encourages the parents and teachers to make best use of the best resources for their overall and healthy adjustment to the changes brought by the process. Knowledge of development helps the teachers to make best use of best teaching methods, positive rapport, and academic resources in the educational fields according to the rate of students' development. Likewise, parents and family members can take best care in terms of nutrition, emotional support, value orientation and creation of a sound and healthy family and societal environment.

10. **Planning for child's future:**

Study about the development helps the teachers and parents to better acquaint with their children's every aspect of growth and development. This helps them to predict the future of their child and make best plan for their future.



LET US KNOW

Development of children is a subject which interest parents, grandparents, friends, teachers, doctors, social workers and many others. These people are often baffled by children's behavior. If they better understand growth and development, they could contribute more to the welfare of children and their overall adjustment.

3.4 DIFFERENT METHODS OF STUDYING DEVELOPMENT

Study of development is not a recent phenomenon. Long before, there were attempt to make scientific studies of development. Earlier, attempt were made to study how children developed? One of the first person to study children as individual was John Amos Comenius. Besides him, there were Locke, Rousseau, Pestalozzi, Herbert Spencer, and Froebel who

indirectly contributed towards the study of children. The observation of Pestalozzi on his three and a half year old son was published as the first scientific record of development. Followed by Pestalozzi, many educationists made attempt to study development of their children. It is important to note here that interest in scientific studies of children was given great impetus by the work of **G. Stanley Hall**. He is often considered as ***"Father of the Child Study Movement".*** One of the another great contribution towards the study of children was made by Charles Darwin through his article – ***Biographical sketch of an infant*** published in 1877, which was a detailed elaboration and careful observation of the behavior and development of an infant. Thus, the study of child development marked long before.

Scientific study of child development is not an easy process. There are many obstacles that psychologists or educationists have to face in studying development. Moreover, the scientific study of development includes different dimensions like emotion, interest and many behavioral traits of children. Many time, data reported by parents and teachers are inaccurate, lack of consent of parents of new born to let their child be studied are some of the common obstacles in studying development. In spite of these obstacles, study of development occupies an important place in developmental psychology and it contributes to the development of many theories and principles of development. There are different methods used in studying development. In this unit, some of the methods are discussed.



CHECK YOUR PROGRESS

Q 1: Who is considered as Father of the Child Study Movement?

.....

.....

Q 2: The article entitled-"Biographical sketch of an infant" was written by

.....

.....

Q 3: State two common obstacles in studying child behavior.

.....

.....

3.4.1 Cross Sectional Method

One of the significant methods used by the developmental psychologists in the study of development is Cross-sectional method. In this method, the psychologists observes differences between individuals of different ages at the same time. Here, different sample of behaviour are studied and comparisons are made. Ruble and Naka Mura in the year 1973 studied dependency among children by using this method. They compared kindergarten first, second and third grade children on a measure of dependency. They found large group differences with dependency most pronounced in the youngest children and least pronounced in the oldest. Such kind of cross sectional method is an effective way of spotting age group difference as such. Thus, this method involves looking at different groups of people of different ages. Cross-sectional studies are based on observations that take place in different groups at one time.

Cross-sectional method is a method often used in developmental psychology, but it is also used in many other areas including social science, education and other branches of science. This is known as descriptive research not causal or relational as it is not used to determine the cause of something. Researchers/ psychologists record the information that is present in a population/ group, but they do not manipulate variables. Hence, this type of research can be used to describe characteristics that exist in a group, but not to determine cause-and-effect relationships between different variables. This method is often used to make inferences about possible relationships or to gather preliminary data to support further research and experimentation.

Here, this type of study utilizes different groups of people who differ in the variable of interest, but share other characteristics

such as-socio-economic status, educational background and ethnicity. In developmental psychology, cross sectional method is used to study select group of people who are remarkably similar in most area, but differ only in age. By doing so, any differences between groups can presumably be attributed to age differences rather than to other variables. While, the design of such group seems to be relatively easy, finding participants who are very similar except in one specific variable can be very difficult. Additionally, groups can be affected by cohort differences that arise from the particular experiences of a unique group of people. Individuals born in the same time period may share important historical experiences, while people born in specific geographic region may share experiences limited solely to their physical location.

Merits of Cross sectional Method:

The merits of cross sectional method can be pointed out as –

- It includes different age groups of people at a time. Hence, it can be done relatively quickly.
- It is economical in time and cost as data is all gathered at the same point in time.
- It requires no experimental procedure, so no variables are manipulated by the psychologists.
- It is easy and simple to use as instead of performing an experiment, the psychologists need to simply record the information that he observe in the groups.
- The information gathered through cross-sectional method may be used to develop other methods to investigate relationship among groups.
- It is an affordable study method. Cross-sectional studies are much cheaper to study different groups at a same time.
- The studies made through this method are observational in nature.
- It allows psychologists to look at numerous characteristics simultaneously. Instead of focusing on particular traits, this

method looks at each participant as an entire individual.

- Cross-sectional studies provide us with a snapshot of a specific group of people at a particular point in time.
- It can provide information about what is happening in a current population or group.

Demerits of Cross-sectional Method:

The cross-sectional method is sometimes subject to criticism. The following are the cause behind its criticism-

- Cross sectional method cannot tell the psychologists to how stable people's characteristics are as they mature.
- It does not involve repeated measurement of the same individual.
- Cross-sectional method can be used to describe the characteristics that exist in a group, but it cannot be used to determine any relationship that may exist.
- This method is used to gather information only.
- There is no prospective or retrospective follow-up in this method.
- Cross-sectional studies often need to select a sample of subjects from a large and heterogeneous study population. Thus, they are susceptible to sampling bias.
- This method is not good for studying rare behavior.
- This method does not determine the cause-and-effect relationships between different variables.



CHECK YOUR PROGRESS

Q 4: What is cross-sectional method?

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Q 5: State two merits and demerits of Cross-sectional method.

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3.4.2 Longitudinal Method

This is quite opposite method to cross –sectional method used in the field of studying development. A psychologists using longitudinal method observes the same group of individuals over a period of time. The individuals may be children or adult. This method provides a picture of continuous growth. Simply, it refers to the method studying the same group of individuals over an extended period of time. Here, in this method, data is first collected at the outset of the study and then the psychologists may gather data repeatedly throughout the length of study. In some cases, longitudinal studies can last for several decades. This is a best method to study development as it occurs throughout one's life as this method allows the investigator to look at changes over time. Repeated gathering on data over years or period may provide adequate data regarding human development. The longest-running longitudinal study in the world today was started in 1921 by psychologist Lewis Terman. He wanted to investigate how highly intelligent children would develop as they turned into adults.

Longitudinal is a type of method used to discover relationship between variables that are not related to various background variables. This is an observational method. This technique or method involves studying the same group of individuals over an extended period of time. Longitudinal study or method is a developmental research strategy that involves testing an age group repeatedly over many years. It provides the answers to the vital question how people develop? This developmental study follows people over years and the outcome has been an incredible array of findings, especially relating to psychological problems.

It is important to note that a longitudinal study is also a co-relational research study that involves repeated observations of the same items over long period of time. Hence, it is used in developmental psychology to study the developmental trends across

the life-span. Unlike cross-sectional method, it tracks the same people and hence, the differences observed in these people are less likely to be the result of cultural differences across generations. Due to this, the observation on changes on human development made through this method is more accurate.

Longitudinal study or method can be used to find the conclusions that types of development are normative in nature or not. In this type of study, it observes the ways in which development's stages changes between an individual and hypothesizes about the factors of variation in data.

Types of Longitudinal Method

There are three types of longitudinal studies-

A. Panel Study:

This study involves sampling a cross-section of individuals and survey it at regular intervals.

B. Cohort Study:

This study involves selecting a group based on a specific events such as birth, geographic location or historical experiences. This study is a research effort that follows over time group of individuals who are similar in some respects but differ in certain other characteristics and these characteristics are compared with particular outcomes.

C. Retrospective Study:

It involves looking to the past by looking at historical information such as medical records.

Merits of Longitudinal Method:

The merits of longitudinal method can be pointed out as –

- It allows the investigators to look at changes over time.
- It is especially beneficial for studying development and life-span issues as it observes the same group of individuals over a period of time.
- The observation of developmental changes made by this method are more accurate.

- It provides the answer to the vital question of how people develop.
- This method provides a clear picture of continuous growth in men.
- It is helpful in observing the ways in which development varies between individuals.
- It also hypothesizes about the possible causes of variation in development.
- This method can identify unique developmental trends in men.

Demerits of Longitudinal Method:

The causes behind the criticism of longitudinal Methods are-

- This method often requires large amount of time and finding, hence it is expensive.
- It requires significant commitment and resources to be effective.
- The longitudinal study have small group of subject, which makes it difficult to apply the results to a larger population.
- In longitudinal study, participants sometimes drop out of the study in midway, shrinking the sample size and decreasing the amount of data collected and lead to invalid conclusion.
- Since longitudinal studies repeatedly observe subjects over a period of time, any potential insights from the study can take a while to be discovered.
- The data that is collected from longitudinal studies may not be reliable as it behavior changes over time.
- The method require a large sample size.
- Longitudinal studies are often observed to allow flexibility to occur.



CHECK YOUR PROGRESS

Q 6: What are the types of Longitudinal Study?

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Q 7: Who made the longest longitudinal study?

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3.4.3 Co-Relational Method

Another method for studying development is co-relational method. This method shows the relationship between two variables. It is alternative of descriptive studies. A correlation refers to a relationship between two variables. Correlational studies are a non-experimental research method used to understand the linear relationship/association between two variables determined by statistical analysis. Correlational research aims to observe how strongly the variables are associated or related. Correlational studies are a type of research often used in psychology, as well as other fields like medicine. Correlational research is a preliminary way to gather information about a topic. In this type of non-experimental method, psychologists look at relationships between the two variables but do not introduce the variables themselves. Instead, they gather and evaluate the available data and offer a statistical conclusion. The method is also useful if researchers are unable to perform an experiment. Researchers use correlations to see if a relationship between two or more variables exists, but the variables themselves are not under the control of the researchers.

The attributes of correlations include strength and direction. The direction may be positive (both variables increase or decrease together), negative (one variable increase while the other decreases) or unrelated (a random relationship between variables). The strength of a correlation ranges from -1 to +1 with a 0 reflecting no relationship between the variables. A correlational study serves only to describe or predict behavior and not to explain it. This is so because a third variable could be shown to cause the occurrence of one of the variable. Moreover, only experiments can prove causation. The co-efficient of correlation is a measure of correlation strength and can

range from -1.00 to +1.00.

Types of Correlational Study/Method:

There are three sub-types of correlational Method or study-

A. Naturalistic Observation

The naturalistic observation is a sub type of correlational method which involves the process of observing and recording the variables of interest in the natural environment without interference or manipulation by the investigator or the experimenter. It allows the investigator the opportunity to view the variables of interest in a natural setting. It is used to study development when laboratory experiment is not possible. One of the demerits of this method is that study subjects might act differently if they know that they are being watched. The researchers or investigator might not be aware that the behavior that they are observing is not necessarily the subject's natural state i.e., how they would act if they did not know they were being watched.

B. Survey Method

In this method, a random sample of participants completes a survey, test or questionnaire that relates to the variable of interest. If the psychologists need to gather a large amount of data in a short period of time, a survey is likely to be the fastest, easiest, and cheapest option. It is a flexible method as it lets investigators to create data-gathering tools that will help ensure they get the information they need from all the sources they want to use (a random sample of participants taking the survey). One of the advantage of this method is that it is more flexible than other methods. But, it can be affected by an unrepresentative sample or poor survey questions. Participants can affect the result by trying to please the researchers or by lying to make themselves look better.

C. Archival Research

Archival method is performed by analyzing studies conducted

by other researchers/ investigator or by looking at historical record of the particular sample. Many areas of psychological studies benefit from analyzing studies that were conducted long ago by other researchers, as well as reviewing historical records and case studies. The advantage of this method is that here researchers cannot change participant behavior. Using records, databases, and libraries that are publically accessible or accessible through their institution can help researchers who might not have a lot of money to support their research efforts, which makes it less expensive, but in this method sometimes information might be missing.

Merits of Correlational Method:

Correlational Method has some advantages in terms of-

- It is non-experimental study as such it is less costly and effective.
- It does not involve manipulative process.
- It provides the direction and strength of each relationship.
- The results of a correlational method are easy to classify as positive, negative or no relation.
- Through this method development of large number of individuals can be studied.

Demerits of Correlational Method:

Correlational method are sometimes criticized as-

- It determines the relationship between two variables but it does not suggest a cause for the effect.
- It can be expensive and time-consuming to achieve an outcome.
- Biased results can be revealed sometimes through this method.

These are the three important methods of studying development. Besides these, there are some other methods that are used by the psychologists used to study children or development of the individual. The succeeding unit will deal with those methods of studying development.



3.5 LET US SUM UP

The unit can be summarized as-

- The behavior of the child varies according to their ages and developmental characteristics which have a great impact on their life.
- Everyone in close contact with children can contribute to their development. The study of development help parents and teachers to plan activities and experiences for their children and to take proper care of them.
- Study of development can be significant in terms of providing Knowledge of Developmental Pattern, getting answers to how and why of Change, aware to take Prevention to hazards and so on.
- One of the first person to study children as individual was John Amos Comenius.
- Besides him, there were Locke, Rousseau, Pestalozzi, Herbert Spencer, and Froebel who indirectly contributed towards the study of children.
- Scientific studies of children was given great impetus by the work of G. Stanley Hall. He is often considered as “Father of the Child Study Movement”.
- There are different methods used in studying development. Among them-Cross-sectional method, Longitudinal Method and Correlational Method are significant.
- In cross-sectional method the psychologists observes differences between individuals of different ages at the same time.
- A psychologists using longitudinal method observes the same group of individuals over a period of time. Longitudinal is a type of method used to discover relationship between variables that are not related to various background variables.
- There are three types of longitudinal studies- Panel Study, Cohort Study and Retrospective Study.

- Correlational method are a non-experimental method used to understand the linear relationship/association between two variables determined by statistical analysis.
- There are three sub-types of correlational Method- Naturalistic Observation, Survey Method and Archival Research.



3.6 FURTHER READING

1) Ahlawat Neetu(2010): Developmental Psychology, RBSA Publisher, Jaipur.
2) Dash B.N (2011): A textbook of Educational Psychology, Dominant publishers and distributors' pvt. Ltd.
3) Goswamee Gayatree (2008): Child Development and Child Care, Arun Prakashan, Guwahati, Assam.



3.7 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: G. Stanley Hall is often considered as Father of the Child Study Movement.

Ans to Q No 2: Charles Darwin.

Ans to Q No 3: Two common obstacles in studying child behavior are

- Many time data reported by parents and teachers are inaccurate.
- Lack of consent of parents of new born to let their child be studied.

Ans to Q No 4: Cross-sectional method is a method often used in developmental psychology. In this method, the psychologists observes differences between individuals of different ages at the same time. Here, different sample of behaviour are studied and comparisons are made.

Ans to Q No 5: Merits of Cross sectional Method:

- It requires no experimental procedure, so no variables are manipulated by the psychologists.
- It is easy and simple to use as instead of performing an experiment, the psychologists need to simply record the information that he observe in the groups

Demerits of Cross-sectional Method:

- It does not involve repeated measurement of the same individual.
- Cross-sectional method can be used to describe the characteristics that exist in a group, but it cannot be used to determine any relationship that may exist.

Ans to Q No 6: There are three types of longitudinal studies-

1. **Panel Study:** This study involves sampling a cross-section of individuals and survey it at regular intervals.
2. **Cohort Study:** This study involves selecting a group based on a specific events such as birth, geographic location or historical experiences.
3. **Retrospective Study:** It involves looking to the past by looking at historical information such as medical records

Ans to Q No 7: The longest-running longitudinal study in the world today was started in 1921 by psychologist Lewis Terman.



3.8 POSSIBLE QUESTIONS

A. Short Questions (Answer each questions in about 150 words)

Q 1: What is cross-sectional method?

Q 2: What are the types of longitudinal method?

Q 3: Give your perception on Naturalistic observation.

Q 4: Differentiate between cross-sectional and longitudinal method of studying development.

Q 5: Critically analyse correlational method as a method of studying development.

B. Long Questions (Answer each questions in about 300-500 words)

Q 1: How does study of development can help teachers and parents? Discuss.

Q 2: Discuss cross-sectional method as an important method of studying development.

Q 3: Why longitudinal method is considered as best method of studying life-span?

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UNIT 4 : METHODS OF STUDYING DEVELOPMENT-II

UNIT STRUCTURE

4.1 Learning Objectives

4.2 Introduction

4.3 Some Other Methods of Studying Development

- 4.3.1 Experimental or Method
- 4.3.2 Case-studies Method
- 4.3.3 Observation Method.

4.4 Let Us Sum Up

4.5 Further Reading

4.6 Answer To Check Your Progress

4.7 Possible Questions

4.1 LEARNING OBJECTIVES

After going through this unit, you will be able to-

- understand and apply some other methods of studying development.
- acquaint with the concept of experimental method as a method of studying development
- know about case-studies and observation method for studying development.

4.2 INTRODUCTION

In the preceding unit, discussion has been made on importance of studying development and how it is beneficial for teachers, parents and other person concerned for contributing towards the overall development of the children. The important methods of studying development were discussed in the unit 3. Besides the cross sectional, Longitudinal and correlational method, there are some other methods used by psychologists or the educationists to derive various fact regarding human life and development. The study made through these methods have contributed a lot in deriving many conclusions and principles of human life-span. These

are beneficial not only for the history of developmental psychology but also guide the parents, teachers and others to contribute in the balanced adjustment of the child with their life through different changing ages and phases. These methods are popularly used in psychology in studying behavior. As a learner of education, knowledge about these methods will not only enrich your knowledge on behavior but also help you to study human behavior and explore new facts regarding you and the surrounding people. Let's get acquainted with these popular method of studying development-

4.3 SOME OTHER METHODS OF STUDYING DEVELOPMENT

In studying the behavior of children or development no one method of measuring technique is suitable for all age level or for all forms of behavior. The aim of scientific study is to make observations that lead to accurate predictions. But such prediction cannot be always reliable and valid. Again entirely different methods must be used for studying children or development who cannot verbalize their thoughts and for those for children who cannot read and write and for those who can do. Again studying children in a laboratory also has some obstacles. Laboratory setting itself make children apprehensive of revealing much of their behavioral characteristics. To eliminate this obstacles, some psychologists began making study in the child's natural habitat of the home, school, playground or the place where child spend most of their time. To increase the accuracy of the data, sometimes the psychologists make use of cameras and electronic devices to record the behavior. Training in observation and reporting is also provided to the parents so as to get accurate data regarding their children's behavior. Moreover, contribution of day-care centers, nursery schools, health clinic, child guidance clinics are inseparable in studying the behavior of children. There are many methods of studying the behavioral changes in individual. Some of them are already discussed in the preceding unit. The some other methods of great significance are-experimental method, Case-studies and observation method.

4.3.1 Experimental Method

This is the most scientific and objective method of studying development. Among all the methods of investigation, this method is considered as highly developed, formalized and most accurate method of studying development. In this method, emphasis is given on experimentation. Here, experimentation consists of objective observation of actions of people under pre-arranged or rigidly controlled conditions. Out of these observation, certain conclusions are drawn and principles or theories are formed. The word-"experiment" comes from a Latin word-"experimentum" which means a trial or test. Hence, in experimentation, psychologists try or put to the test the material or phenomenon whose behaviour or consequences they wish to ascertain. The basic idea behind the experimental method is to control the phenomena under study and the variable of which are being observed. This method attempts to rely solely on an application of the scientific method to understand the behaviour or developmental changes in men. Experiments are conducted to test a particular hypotheses or evaluate functional relationship. In the experimental method, hypotheses are formulated about the effect of one thing on another, the independent variable is the one expected to produce changes in the dependent variable.

Significant feature of Experimental Method:

There are some necessary feature that signifies the experimental method. These are-

- **Psychological Laboratory:**
  There must be a well-equipped laboratory to conduct the experiments.
- **Experimenter and the Subject:**
  Experiment performed in this method essentially requires two person-one the experimenter and the subject whose development is to be observed or studied.

- **Variables:**

  Another significant feature of experimental method is conditions or variables. Through the variables, psychologists or experimenters are able to observe the casual relationship between two phenomena, keeping all other conditions almost constant. The variable which effect are being studied is called the independent variable and the variable which is being effected is called dependent variable. Thus the independent variable stands for the cause, and the dependent variable is the effect of that cause. There may have other conditions other than these two variables are called intervening variables. If we take an example of effect of creativity on achievement, here, creativity will be the independent variable and achievement will be the dependent variable. Other conditions like-parental support, teaching method, memory of the children etc. which exercise a good impact upon one's achievement besides creativity can be termed as intervening variable. In experimental method, all such intervening variables are controlled, hence they are made constant or equalized and the effect of only one independent variable on dependent variable is studied. For this, psychologist try to change and vary the independent variable. This brings about concomitant objectively observed and measured on the basis of which certain conclusions are made.

- **Experiment on living organism:**

  Another essential feature of experimentation is that the experiments are always conducted on living organism. Generally, in physical science experiments are conducted on inorganic or dead subjects. But, experimental method used in developmental psychology make use of living being only.



LET US KNOW

In experimental method, the experiments are conducted to test a particular hypotheses. The key concept to describe an experiment is similar people in different circumstances. The similarity of the people is achieved by random assignment. The different circumstances are created by manipulation of some situational variables.

Experimental method is not restricted to the laboratory. In a natural setting too, a manipulation of the situation can be made to see the effect on one's behaviour. However, for such study, there is need of some specific experimental designs for controlling the variables and measuring their effects. Such designs help the psychologists to control the variables. Some of such designs are discussed here that can be used to study development-

A. The Control Test or single -group design:

In this design, experiment is conducted on a single group or individual. Here, the psychologists try to differentiate by observing the performance under different conditions. First, the behaviour is observed under normal conditions and then again with different set of changed condition. Conclusions are then drawn by comparing the differences. In this design, it is not necessary to have two different individual or group of subject for experiment. Only the measures can be taken several times under different conditions.

B. Control Group Design:

In the control group design, two separate groups one-experimental group and another the control group participate in the experiment. These two groups are made to function under the same condition except in the difference in independent variable. For example, to study the intellectual development or behaviour, under this design, both the groups

are equated on various personality characteristics like age, sex, intelligence. One to one correspondence in the two groups are made. The control group is given some sugar capsules and they are tested on some intelligence test. At the same time, experimental group is given drug capsules and tested on same intelligence test. After that, the difference in the intelligence scores are calculated, which reveals some significant difference as a result of the effect of drugs.

C. Multiple-group Design:

In this design, experiment is conducted with more than two group for arriving at the appropriate conclusions.

D. Rotation Design:

This experimental design involves presenting two or more stimulating situations to the experimental subjects in as many sequence as necessary to control the serial effect of one variable on the other.

Critical Analysis of Experimental Method:

Experimental method is the most significant method of psychological studies. It makes application of scientific method to understand human behaviour and development in men. As a method of studying development, it can provide various scientific information on scientific and systematic experimentation. Experimental method includes controlled experiments which are identical to the experimental sample. If we try to analyse this method critically, we have to analyse it from both the positive and negative aspects. The positive aspects of this method can be categorized as-

- It is the most scientific method of studying human behaviour as it relies on application of scientific method.
- This method allow the psychologists to establish causal relationship between different aspects of behaviour and environment leading to make clear findings on development and its influencing factors.
- Experiment under this method always has a testable

hypotheses in terms of observable events or phenomenon.

- It is the most objective method of obtaining knowledge of different aspect of human behaviour.
- Through conduction of different enlightening experiments, facts about human development, developmental hazards faced by the children can be revealed.

Though in many ways, the experimental method is one of the best methods for gathering scientific information, yet, it has its own limitations-

- In experimental method, the experiments are conducted under controlled condition, such artificial situation is different from natural environment. As such, it fails to study the behavioural changes in natural conditions.
- Experimental method is a lengthy and time consuming method as it requires creation of artificial conditions to conduct the experiments.
- Success of the experimental method lies in controlling of conditions and variables. It is very difficult to know and control all of the variables.
- As experiments in psychology are often conducted on animals or birds, so studying human development through experiment may not be possible or the result done on animals may not be applicable to human.
- Under this method, it is very difficult to control internal mental conditions of the people.
- The scope of experimental method is limited, all problems of human behaviour cannot be studied by this method. Because, experiments are not possible to conduct for all the problems that may come up in the diverse subject of developmental psychology.
- Conduction of experiments requires specialized knowledge and skills.
- Study about development in the early years of life is not possible

through experimental method as receiving co-operation from the children and their parents is not possible.

Thus, the above limitation reveals that in studying the developmental changes in the child, the experimental method is restricted in its application.



CHECK YOUR PROGRESS

Q 1: What is the derivative meaning of experiment?

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Q 2: What are the two groups used in experimental design?

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Q 3: What is an intervening variable?

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4.3.2 Case-Study Method

Case-studies are another significant methods most popularly used by the developmental psychologists to study about the developmental phenomenon in men. Case study in psychology refers to the use of a descriptive approach to obtain an in-depth analysis or study of a person, group or phenomenon. This method is a very popular form of qualitative analysis and involves a careful and complete observation of a social unit in terms of a person or group. Thus, case study is essentially an intensive investigation of a particular unit under consideration. The case-study method is widely used systematic field research technique in child development. Initially, case study was limited to mal-adjusted children, but at present, case study method has a wider application since it facilitates intensive study of child behaviour and reveals facts about human development.

The case study research method originated in clinical medicine which is called as the case history, i.e. the patient's personal history. In psychology, case studies are often confined to the study of a particular individual. The information is mainly biographical and relates to events in the individual's past i.e. retrospective, as well as to significant events which are currently occurring in his or her everyday life. In this method, the psychologists try to go deep into the past history of the subject in order to find out some of the important events or forces which are responsible for making him what he is. A case study is nothing but a collection of facts about an individual. The data regarding an individual previous history is collected from him and his associates and on the basis of such data conclusions are made.

Case study is used to get the analysis of a particular subject or individual. Much of Psychologist Freud's work and theories were developed through individual case studies. In a case study, nearly every aspects of the subject's life and history is analysed to seek pattern and causes for behaviour. The learning or findings from studying one case can be generalized to many others. Of course, subjective case studies are difficult to generalize to a larger population.

Techniques used for Case Study:

A variety of techniques may be employed including personal interview, direct observation, psychometric test as well as archival record. The procedure used in a case study means that the researcher provides a description of the behavior. This comes from interviews and other sources, such as observation.

The subject whose case is being studied reports detail of events from his or her point of view. The investigator then writes up the information from both sources above as the case study, and interprets the information. The study may also continue for an extended period of time, so processes and developments can be studied as they happen. Amongst the sources of data the

psychologist is likely to turn to when carrying out a case study are observation of a person's daily routine, unstructured interviews with the participant herself and with people who know the subject, diaries, personal notes like- letters, photographs, notes or official document like-case notes, clinical notes, appraisal reports.

The case study method often involves simply observing what happens to, or reconstructing 'the case history' of a single participant or group of individuals such as a school class or a specific social group. The interview is also an extremely effective procedure for obtaining information about an individual, and it may be used to collect comments from the person's friends, parents, employer, workmates and others who have a good knowledge of the person, as well as to obtain facts from the person him or herself.

It is important to note that most of this information is likely to be qualitative i.e. verbal description rather than measurement but the psychologist might collect numerical data as well. All the approaches mentioned here use preconceived categories in the analysis and they are ideographic in their approach, i.e. they focus on the individual case without reference to a comparison group.

A good case study should always make clear which information is the factual description and which is an inference or the opinion of the investigator.

Advantages of Case-study Method:

As a method of studying human behavior or developmental changes, case study has some positive aspects-

- The case-study is an in depth study about a phenomenon, as such it provides first hand picture about the case.
- The case study method offers a continuous analysis of a case. That means there aren't interruptions in the process of studying which is very essential to reveal about developmental process.
- Case studies allow an investigators to investigate a case of development in child or men in far more detail which leads to exploration of more facts about the developmental process.

- It is very significant method to study normal development of a person.
- Because of their in-depth, multi-sided approach case studies often shed light on different aspects of human thinking and behavior.
- Case studies are often can help us generate new ideas. They are an important way of illustrating theories and can help show how different aspects of a person's life are related to each other.
- It is one of the best method for diagnostic studies, as such it helps to diagnosis various hazards that may arise in the process of child development, as it helps a lot in diagnosing the cases which suffers from personal, social and other developmental abnormalities.
- Case study in psychology is the potential for the development of novel hypotheses for later testing.

Disadvantages of Case-study Method:

Though case study is a best method to obtain in depth analysis of an individual, this method is criticized many time as-

- It is difficult to maintain record of every events of a case under case study method.
- The information gathered regarding the case may be influenced by subjective observation which makes it less reliable.
- The method requires highly trained and skilled persons to make in depth study of a case specially in providing diagnosis the case.
- In depth study about a case requires more time and efforts which makes the method lengthy.
- It is not always possible to get reliable data regarding the past of the case which may mislead the study.
- Case study method provides a great deal of information about a specific person, the result are often difficult to generalize to a larger population.

- In psychology, case studies are most often used in clinical study to describe rare events and conditions which contradicts well established principles in the field of psychology.
- Case studies are unable to draw cause and effect relationships or test hypotheses.



CHECK YOUR PROGRESS

Q 4: State two merits and demerits of Case study method.

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4.3.3 Observation Method

Observation method is the most commonly used method especially in studies relating to behavioural sciences. Child study started with observation of the behaviour of the child as he grows up by the parents who maintained a diary and noted all the particulars. It is the oldest method of studying behaviour. Development can precisely studied by observing the changes that occur in men or child.

The word-"observation" has been derived from the ***Latin word-"observare"*** which means -to keep open. As such, observation seems to be easy and simple, we simply keep our eyes open and we see certain things. But it is not that simple. Observation is much more than seeing something. It involves a mental process. Observation becomes a scientific tool and a method of data collection for the investigator when it serves a formulated study purpose as well as systematically planned and recorded and is subjected to check and control on validity and reliability. Observation as a method of studying development is particularly suitable in studies which deal with children, their activities and behavioural changes since it is a

more natural way of collecting data. Different great psychologists of the world made use of this method for studying children. Even The great Biologist Charles Darwin maintained a diary noting down the behaviour and development of his son. Using this method, an attempt was made to understand the problems confronted the child. As such observation as a method can be helpful in finding out different developmental facts and hazards.

Mrs. P. V. Young, in her book 'Scientific Social Surveys and Research' has defined observation as, *"Observation is a systematic and deliberate study through the eye of spontaneous occurrences at the time they occur"*. As such, observation is carried out with the eye, and the purpose and aim of observation is to discover significant mutual relations between spontaneously occurring events. Observation as a method can be refereed as the approach of studying behaviour consists of the perception of an individual's behaviour under natural conditions by other individuals and the interpretation and analysis of the perceived behaviour by them. Through this method, mental process of others can be inferred through observation of their external behaviour. It can also be interpreted as indirect method of studying mental process of children or men. In all observations there are two elements, one-the sense-perceptual and the mental. We make observations with the help of senses like-seeing, hearing etc. but along with that mind also work. Observation involves interpretation of the sense experiences by minds.

In every act of observation, there are two components-one the object or what is observed and the subject or the observer. Sometimes, one may have to observe one' own immediate experience. That would be subjective observation or introspection, you have already come across this concept in your previous semester. Many of psychological interest are gathered by the method of subjective observation. On the other hand, in many investigation, the observer is an entirely apart from the thing observed. Observation

of this kind is objective observation or extrospection. In recording social data, objective observation is more appropriate as composed with subjective. The data obtained from observation are as viable and meaningful and more varied than those obtained by experimental and case study method.

Advantages of Observation method:

The reason behind considering observation as most easiest and popular method are-

- Findings of observation are always systematic, reliable and planned as well as specific.
- It provides a solid ground for experimentation.
- It is one of the natural and flexible method of studying developmental change in behaviour.
- It does not require any laboratory setting or long duration, as such it is economical in terms of time, money and efforts.
- Through this method, it is easy to gather data about human action and reaction.
- Observation is based on actual and firsthand experience, the data obtained through this are more realistic than other method.
- The result obtained through this method are reliable and can be verified.

Disadvantages of Observation Method:

Besides being as popular method of studying behaviour or development, it is not free from criticism. Such as-

- Observation method is useful only for collecting data on the observable behaviour of an individual. It does not provide data of the inner mind as such reasoning can only be established through external behaviour.
- While using this method, sometimes a person may hide his feeling and emotions and can disguise the evil nature under the cover of artificial sobriety. In such case of hypocrisy, this method fails to judge a person in actual sense.
- The observation made by the observer may be affected by

subjective judgement which may affect the result.

- Under observation method, the observed behaviour is dependent on the time and place and on the individual or group. As such it lacks replicability as each natural situation can occur only once.
- Observation method fails to establish a proper cause and effect relationship.
- Sometimes, lack of experience and skill on the part of the observer may lead to wrong result and interpretation.
- The conclusions based on observation are not reliable, because in observation we have to depend upon human tact and resourcefulness only.

In spite of the criticism, all these methods discussed above are some of the significant and popularly used methods of studying development. Psychologists, researchers or investigators are constantly trying to reveal new facts about how and why of human development through applying these methods to explore behavioural changes in men.



CHECK YOUR PROGRESS

Q 5: What are the two elements involved in observation?

.....

.....

Q 6: What is extrospection?

.....

.....



4.4 LET US SUM UP

The unit can be summarized as-

- In studying the behavior of children or development no one method of

measuring technique is suitable for all age level or for all forms of behavior, there are many methods of studying the behavioral changes in individual.

- In experimental method, emphasis is given on experimentation.
- Experimentation consists of objective observation of actions of people under pre-arranged or rigidly controlled conditions.
- The basic idea behind the experimental method is to control the phenomena under study and the variable of which are being observed.
- Significant feature of Experimental Method are- Psychological Laboratory, Experimenter and the Subject, Variables and Experiment on living organism.
- Experimental method is not restricted to the laboratory. In a natural setting too, a manipulation of the situation can be made to see the effect on one's behaviour.
- Case-studies are another significant methods most popularly used by the developmental psychologists to study about the developmental phenomenon in men. Case study in psychology refers to the use of a descriptive approach to obtain an in-depth analysis or study of a person, group or phenomenon.
- A variety of techniques may be employed in case studies including personal interview, direct observation, psychometric test as well as archival record.
- Observation method is the oldest method of studying behaviour. Development can precisely studied by observing the changes that occur in men or child.
- Mrs. P. V. Young, in her book 'Scientific Social Surveys and Research' has defined observation as, *"Observation is a systematic and deliberate study through the eye of spontaneous occurrences at the time they occur"*.



4.5 FURTHER READING

1) Dash B.N (2011): A textbook of Educational Psychology, Dominant publishers and distributors' pvt. Ltd.

2) Goswamee Gayatree (2008): Child Development and Child Care, Arun Prakashan, Guwahati, Assam.

3) Mangal S.K (2006 2nd Edition): Advanced Educational Psychology, Published by Asoke K Ghosh, Prentice Hall of India Private Limited, New Delhi.



4.6 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: The word-"experiment" comes from a Latin word-"experimentum" which means a trial or test.

Ans to Q No 2: The two group groups in experimental methods are experimental group and another the control group.

Ans to Q No 3: There may have other conditions other than these two variables -dependant and independent which may affect the subject being studied are called intervening variables.

Ans to Q No 4: Merits of Case-study Method:

- The case-study is an in depth study about a phenomenon, as such it provides first hand picture about the case.
- The case study method offers a continuous analysis of a case. That means there aren't interruptions in the process of studying which is very essential to reveal about developmental process.

Demerits of Case-study Method:

- It is difficult to maintain record of every events of a case under case study method.

- The information gathered regarding the case may be influenced by subjective observation which makes it less reliable.

Ans to Q No 5: In all observations there are two elements involved, one-the sense-perceptual and the mental.

Ans to Q No 6: In many investigation, the observer is an entirely apart from the thing observed. Observation of this kind is objective observation or extrospection.



4.7 POSSIBLE QUESTIONS

A. Short Questions (Answer each questions in about 150 words)

Q 1: What is an experimentation?

Q 2: What are the role of variables in experimentation?

Q 3: State some of the experimental design used to control variable in experimental method.

Q 4: Differentiate between experimental method and case study method.

B. Long Questions (Answer each questions in about 300-500 words)

Q 1: Discuss experimental method as one of the significant method of studying development.

Q 2: What is case study method? How significant is a case study to study human development?

Q 3: Critically discuss observation method as a method of studying human behaviour.

*** ***** ***

UNIT 5 : PRE-NATAL DEVELOPMENT

UNIT STRUCTURE

5.1 Learning Objectives

5.2 Introduction

5.3 Concept of Pre-Natal Development

5.4 Conditions Affecting Pre-Natal Development

5.5 Neo-Natal Period

5.5.1 Actions and Reactions of the Neo-Nate

5.6 Let Us Sum Up

5.7 Further Reading

5.8 Answer To Check Your Progress

5.9 Possible Questions

5.1 LEARNING OBJECTIVES

After going through this unit, you will be able to-

- comprehend the pre-natal stage of development
- understand how development take place in pre-natal stage
- identify the conditions affecting pre-natal development
- know the actions and reactions of the Neo-Nate.

5.2 INTRODUCTION

The Second Unit of this Block must have given you a clear understanding about different stages of life-span in which pre-natal period is the first phase of human life. You must be aware that sudden development does not take place in individual and rather it follows a particular pattern and sequence. The development of human being starts with the conception in the mother's womb. Since conception, different changes take place and a single cell turn to a full-fledged baby ready to come out to the world as an individual. The period from conception to birth is termed as Pre-Natal Stage of human life-span, which is most critical from developmental perspectives, as it is the base phase of human life. As investigated by research studies,

most of the development take place before birth. In this unit, discussion will be made in detail about this period and how development take place throughout the period. Moreover, after going through this unit, you will also be able to know the different conditions that affect the development in this phase and different actions and reactions of the neonate after he enter to the next phase from pre-natal period.

5.3 CONCEPT OF PRE-NATAL DEVELOPMENT

Before going in depth into the different developmental process and changes of the pre-natal period, let's acquaint yourself with the first period of human life-span.

Pre-natal Period:

Life's journey begins with conception in the womb of the mother. The approximate nine month period spent in mother's womb is known as the pre-natal period. This is the most important period of life. This period begins at the time of conception and end at birth, which is approximately 270 to 280 days in length or nine calendar months. Pre-natal development is orderly and predictable, hence, it is possible to give a timetable of the important developments taking place during this period.

Conception (How life begins?):

Pre-natal period starts at the moment of conception. The first step in the development of a human being is that moment of conception. New life begins with the union of a male sex cell called *spermatozoon* and a female sex cell called *ovum*. These sex cell are developed in the reproductive organs (the gonads). Conception take place through the fertilization process of ovum (egg Cell) by spermatozoon (sperm**).** Fertilization in humans refers to the fusion of male and female sex cell that facilitates the development of a new organism. Fertilization is the natural life process, which results in the formation of a new cell, this cell is called as **zygote**. In humans, the process of fertilization takes place in the fallopian tube. Zygote formation in human or another multicellular organism is the first developmental stage in the process of reproducing a complete individual. The zygote further divide into a mass of cells known as **blastocyst** which will transform into an embryo

which will further transform into a foetus and over a period of months the foetus will transform into an offspring. Sexual intercourse is the natural process leading to fertilization. But with the advancement of medical science, the fertilization event that leads to zygote formation can happen through medically assisted fertilization such as in-vitro fertilization (IVF).



Figure 5.1: Fertilization leading to Zygote Formation

Image Source: https://media.istockphoto.com/vectors/process-of-human-fertilization-vector-id1151753982

Conditions determined at Conception:

As already mentioned pre-natal period is the most significant period of human life-span. At the time of conception, certain conditions are determined that influence the individual's later development. These conditions play a very significant role in individual's life.

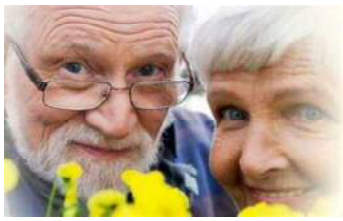
A. Hereditary Endowment: The first important happening at the time of conception is the determination of the newly created individual's hereditary endowment. The maturation of reproductive cells is important in determining what the hereditary endowment of the newly created person will be. Within each sex cell whether the sperm or the ovum there are 23 pairs of chromosomes, within each of which are strings of microscopically small particles-these are called **Genes.** These genes are the physical substances passed from parents to children. There is a common saying that children carries most of their psycho-physical traits from their parents and grandparents through genes. From the two parents the child receives a new combination of parental genes. This combination of genes in parents of the newly created being is made up of the genes they received from their parents.

As such the children may receive some common traits in common with one or both of the parents or their grandparents such in appearance, nature, habit etc. The following diagram will help you to understand why children resemble to their parents or grandparents-

Every man and every women at conception received 23 chromosomes from each parent as a whole 46 in all.

Paternal Grandparents (23 +23) **Maternal Grandparents (23+23)**





In mating each passes on half of his/her chromosomes to every child





Father (23) **Mother (23)**

Father passes half of his Chromosomes to child By the way of a sperm

Mother too contribute half of the chromosomes.

23 23

Child 23 +23=46

These 46 chromosomes constitute everything that determines the heredity of the child.

Diagram 5.1: The hereditary process determined at conception

B. Sex of the newly created individual:

Determination of the individual's sex is another important happening at the time of conception. Sex of the newly created individual or whether the child will be a male or female depends on the kind of spermatozoon that unites with the ovum. As discussed in the above diagram, each sperm and ovum contains 23 chromosomes. The father produces sperm of two kinds in equal number-one half of all mature sperm carry the X chromosomes and the other half carry Y chromosomes. But, mother produces egg or matured ova all of one kind, each with a large X chromosomes. These X and Y chromosomes are sex determining chromosomes. It the mature **ovum (X)** is fertilized by **Y-** bearing spermatozoon, the offspring will be **a Boy**, but if the mature **ovum (X)** is fertilized by **X-** bearing spermatozoon, the offspring will be a **Girl.**

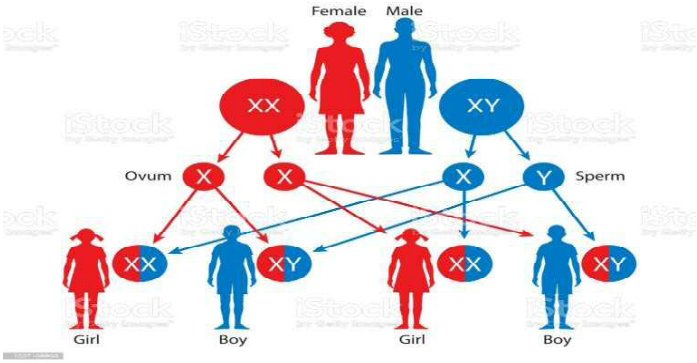


Figure 5.2: Sex determination of baby at conception

Image Source*: https://media.istockphoto.com/illustrations/sex-determination-in-humans-illustration-id1257168903*

C. Number of Offspring: Another important happenings that is determined at the time of conception is number of off spring. While most human are singleton, twins or multiple birth also occur. When a matured ovum is fertilized by one spermatozoon, the result is singleton, if the fertilized ovum or the zygote splits into two or more distinct part during the early stages of cell cleavage, it results in identical twins, triplets or multiple birth. It is important to mention here that, if two or more ovum are released simultaneously by mother and are fertilized

by different spermatozoon, it result in non-identical twins or triplets.

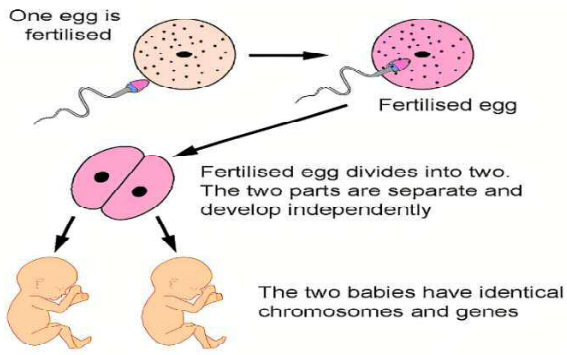


Figure 5.3: Determination of off-spring at the time of conception.



LET US KNOW

- The first developmental period in the life-span is next to the shortest of all, the shortest is the period of new born.
- Zygote is a eukaryotic cell formed by the fertilization of two gametes. Thus, an egg cell or ovum fertilized by a sperm cell is a zygote.
- If the fertilized ovum or the zygote splits into two or more distinct part during the early stages of cell cleavage, it results in identical twins, triplets or multiple birth.



CHECK YOUR PROGRESS

Q 1: What is fertilization?

.....

.....

Q 2: What is a Zygote?

.....

.....

Q 3: What is blastocyst?

.....

.....

Q 4: A child receives ..... chromosomes from each parent at the time of conception.

Q 5: How is the sex of the baby determined at conception?

.....

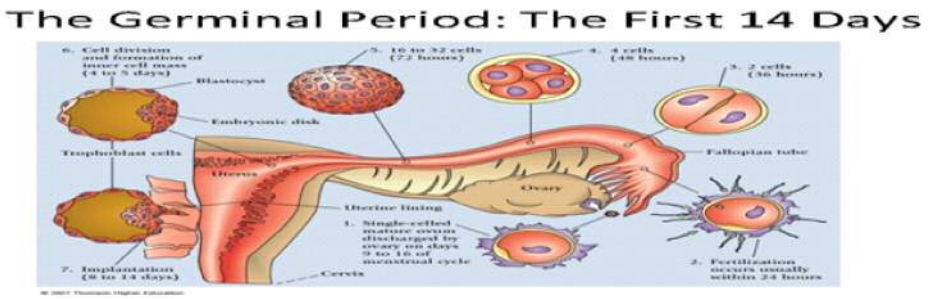
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Three sub-stages of pre-natal period: (Pre-Natal Development):

To know about the developmental norms of pre-natal period, it is essential to be clear with the stages of this period. The pre-natal period is divided into three stages. Each of these stages are characterized by its own peculiar type of development.

1. Period of Ovum/Zygote or Germinal Stage:

This period covers the period from fertilization or conception to end of second week. During the two weeks of this period, the size of the zygote or fertilized ovum is that of a pinhead. During first half of this period the size remain unchanged and free and unattached because it does not receive any outside source of nourishment. The zygote is kept alive by the yolk in the ovum. In this period, the zygote passes down the fallopian tube to the uterus, it divides into many times and separates into outer and inner layer. The *outer layer later develops into* ***the placenta, the umbilical cord and the amniotic sac***. The inner layer develops into a new human being. While the zygote completes its journey the lining of the uterus completes its preparation to receive the ovum. When the zygote finds a place in the uterine wall it gets nourishment through the blood vessels. After ten days after fertilization, the zygote becomes implemented in in the uterine wall. Once, it is implanted, it becomes parasite throughout the pre-natal period in the uterus.



Source:https://slidetodoc.com/presentation_image_h/72fadb6d4f718dc6f558229babe235cb/image-8.jpg

2. **Period of Embryo or Embryonic Stage:**

The second sub stage of pre-natal period is period of embryo or it is also termed as embryonic stage. This period ranges from the end of second week from conception to second lunar month. This period occurs once the zygote finally implants into the uterine wall of the mother. During this period, the embryo develops into a miniature human being. This period is characterized by rapid developmental changes. All the essential features of body both external and internal are established in this period. Major development occurs in the head region first and in the extremities last. The placenta, the umbilical cord and the amniotic sac are developed which protect and nourish the embryo until the time of birth. The sex organs are well developed enough to distinguish the sex of the embryo. Some features such as eye, arms, ears and feet too become recognizable. At the end of this period, the embryo weighs on the average 1 ¼ ounces and measures in length 1 ½ inches.



Source:https://assets.babycenter.com/ims/2015/01/pregnancy-week-8-brain-nerve-cells_square.jpg?width=600

3. **Period of Fetus or Fetal Stage:**

The third and the most important sub stages of pre-natal development. This period covers the period from end of second lunar month to the

time of birth. This is the longest period of pre-natal development. Major development during this period can be presented as-

- Changes take place in the relative size of the already formed body parts and its functioning.
- Fetal heartbeat can be detected about the fifteenth week.
- By the end of fifth month, the different organ assumes nearly like the one they will have in adult body.
- Nerve cells starts increasing rapidly in numbers during second, third and fourth month.
- Fetal starts kicking and turning between eighteen (18) and twenty two (22) weeks and increase rapidly up to ninth month.
- At five month, course hair begins to grow on the eyebrows and eyelashes.
- By 28-32 weeks, respiratory system develops.
- By the end of seventh month, the fetus is well developed though born at this period are considered pre-matured.
- By the end of eight month, the fetus is completely formed though smaller than that of normal or full term fetus.
- During 7th and 8th month, fetal growth slows down a little and movement are curtailed die to cramped conditions in mother's womb.
- About a week before birth, the baby stops growing having average weight of just 7 pounds and a length of 20 inches.
- By the end of this period, the fetus takes a head-down position in the pelvic region in preparation for birth.



Source:https://www.scienceabc.com/wp-content/uploads/2015/05/stages-of-fetal-development.jpg



LET US KNOW

- **Lanugo:** A wolly hair that grows over the body of the fetus while they are developing in the womb. These hairs disappear either by birth or shortly after when vellus hairs replace them.
- A baby born at five or six month practically has no hope of survival because the respiratory system is not developed during that period.

5.4 CONDITIONS AFFECTING PRE-NATAL DEVELOPMENT

The above discussion has revealed that pre-natal period is one of the most important and crucial period of human development. But there are some conditions which may affect the baby and its development. As a learner of developmental psychology as well as a laymen too, you all should be cleared with these conditions. Pre-natal period is greatly influenced by a wide variety of factors. Some of such factors are-

1. **Nutrition of the mother:**

   The unborn babies' nourishment comes from the maternal bloodstream through the placenta. The malnutrition of the mother will affect the growth and development of the foetus. Hence, mother must be careful in taking balanced diet and proper nutrition such as protein, fats, milk, carbohydrates, folic acid, vitamin C found in various green vegetables and fresh fruits.

2. **Drugs:**

   Certain unprescribed drugs taken by the mother during the pregnancy can have serious developmental effect on the foetus. Narcotics and dosage of these drugs may prove very harmful to both the expectant mother and the foetus. Since drugs permeate the mother's bloodstream and get transmitted to the foetus, hence mother and family members should be very careful in taking drugs.

3. Age of the Mother:

The mother's age at the time of conception and delivery is also an important factor to be considered. Before 21 years of age, the female reproductive system is not fully matured and the hormones needed for reproduction have not reached their optimal levels. The best age for a women to bear a child is 23 to 30. Children generally born before or after this age in average may pronounced various types of genetic abnormalities.

4. RH factors:

Certain substance present in the blood of the foetus which is not present in the mother's blood may create some problems. It may lead to biochemically incompatible. Moreover, incompatibility between the maternal and paternal blood types may cause damage of the cells in the foetus leading to physical or mental complication, miscarriage, still birth or death shortly after birth.

5. Illness and infections:

Though many infectious illness of the mother during the pre-natal period do not cross the placenta, but there are some serious infections that may cross the placenta and affect the baby leading to mental retardation. Some of such well known disease or infections illness is rubella virus or German measles.

6. Birth Complication:

Another important factor affecting pre-natal period is birth complication. Prematurity and anoxia are two of the main complications that can occur in infant's delivery and may lead to retardation and intellectual disfunctioning.

7. Smoking and alcohol:

Consumption of smoking and alcohol during pregnancy is very harmful and it must be avoided as it may lead to damage of child's physical and mental development. Research studies revels that smokers tens to have more spontaneous abortions, more still births and increased heartbeat.

8. Emotional state of mother:

For many women, pregnancy is a time of depression, anxiety and worry. The indirect influences in the form of attitudes of significant people, particularly the mother has a significant impact on the unborn child. Severe and prolonged maternal stress affect the baby's development. This stress may cause hyperactivity of the mother's adrenal glands leading t release of an increased supply of hormone hydrocortisone which may cause physical irregularities and create other allied problems during birth.

9. Environmental Factor:

Besides the above mentioned factors, there are some other environmental factors may affect the unborn baby. Chemicals, radiations, extreme heat, humidity and other hazards of modern life may affect both mother and the fetus.

The expectant mother, the father and the other family members should be conscious about these factors and be very careful in keeping the mother being unaffected from these factors or conditions. A healthy mother living in a healthy environment can give birth to a heathy and happy baby which in turn live a healthy and happy life.

5.5 NEO-NATAL PERIOD

The second important period after pre-natal is the neo-natal period. This period ranges from the time of birth to 10 -14 days post birth. The period right after birth is called as Neo-natal period or period of new born. This is the shortest of all period after birth. This is the time, when the fetus must adjust to life outside the uterine walls of the mother where it has lived for approximately nine month.

The word-"Neonate" is derived from the Greek word-"Neos" which means new and the Latin verb-"Nascur" which means-born. According to medical criteria, the neonatal period begins with birth and ends when the naval heals. This neo-natal period is subdivided into two periods-

A. Period of Partunate

This period ranges from birth to fifteen to thirty minutes after birth.

The period begins when the baby has emerged from the mother's body and lasts until the umbilical cord has been cut. Until the cut of umbilical cord, the baby continues to be a parasite and he/she makes no adjustment to the new environment outside mother's body.

B. The period of Neonate

This period covers the time from cutting the umbilical cord to approximately the end of the second week of post-natal period. With the cutting of umbilical cord, the baby becomes a separate and independent individual. During this period the most important task for the baby is to make adjustment to the new environment outside the womb.

The neo-natal period is a time of radical adjustment. It is a period of transition from an internal to an external environment. The neo-natal period is often termed ***as a plateau in development***, because there is a temporary halt in the process of growth and development. The rapid development of pre-natal period suddenly come to a stop with birth, this regression though lasts for a week after birth. By the end of the neonatal period, the baby's state of development is usually back to where it was at the time of birth.

Characteristics of Neo-Natal Period:

The neo-natal period has the following salient features-

- This is the beginning or the early period of existence as an individual rather than a parasite in mother's body.
- The neo-natal period is a time of radical adjustment.
- The neo-natal period is a hazardous period both physically and psychologically due to their adjustment in the new environment.
- It is the shortest of all developmental period post birth.
- During this period, the new-born's complete helplessness gradually gives away to increasing independence.
- There are certain conditions that effects the adjustment of neo-nate in the new environment, such as-pre-natal environment, parental attitude, postnatal care etc.
- The neo-natal period is often termed as a plateau in development,

because there is a temporary halt in the process of growth and development.

5.5.1 Actions and Reactions of the Neo-nate:

Neo-natal period is the most important as well as the shortest period of human development. This period marks the beginning of foetus as an independent human being. Besides the parents and family members we all as a laymen are curious and excited to experience the actions and reactions of the neo-nate. The activities and reactions of the neo-nate can be listed below-

Movements of body of the baby appear as soon as the foetus emerges from the mother's body. Because of the neurophysiological immaturity of the infant, one could not expect its movements to be coordinated or meaningful. In spite of their random, meaningless nature movements or actions of the infants can be classified into two categories-

1. **Mass Activity of the Neo-nate:**

   Mass activity in neo-nate occurs throughout the entire body when any area is stimulated, though the activity is most pronounced in the stimulated area. Normally mass activity increases in intensity and frequently with each passing day. The greatest activity generally occurs early in the morning when the infant is rested after a relatively long sleep. It is lowest at noon when it is apt to be fatigued as a result of having been bathed or dressed during the morning. The pre-natal and birth experiences influences the infant's activity. The baby who have been most active as foetus in mother's womb, tend to be more active during the neo-natal period. A long and difficult labour or heavy medication of the mother can cause the infant to be relatively inactive for the first few days after birth. It is said that *infant delivered by caesarean section are usually less active than those born through normal delivery.* The greatest amount of activity is in the trunk and legs and the head moves the least.

The following conditions leads to increased activity in baby-

- Hunger, pain and general discomfort give rise to great activity and activity tends to be less when the baby is nursed or fed by the mother.
- Removal of cloths and cover from the body.
- Environmental conditions like light, sounds produces increase in infant's activity.
- Crying and awakening.

2. Specific activities or reflexes of the neo-nate:

Specific activities in the neo-nate involve certain limited areas of the body. They includes some reflexes which are definite responses to specific sensory stimuli and which remain unchanged with repetition of the same stimulus and generalized responses which use larger group of muscles. This may aroused by either external or internal stimuli. Most of the important reflexes in the baby are-pupillary reflexes, reflexes of the lips and tongue, sucking, flexion, knee jerk, sneezing. With the passing of days, these reflexes become stronger.

Some of the common generalized responses in the baby includes-spontaneous eye-movement, shedding of tears, sucking of fingers, yawning, hiccupping, mouthing, frowning and wrinkling, turning the trunk, body jerk, prancing, kicking , salivating, turning and lifting the head etc.

3. Vocationalisation:

Another important form of reaction that a baby make is through vocationalisation. The vocationalisation of the newborn infant is classified into two categories-crying and explosive sounds. During the neo-natal period, baby make responses through crying. Normally, crying starts with birth. Birth cry is reflex activity that causes the lungs to inflate, making breathing possible. Besides crying, the baby makes produce reaction through some explosive sounds uttered without meaning.



CHECK YOUR PROGRESS

Q 6: In which period do the zygote implants in mother's ovum?

.....

.....

Q 7: What is the derivative meaning of Neonate?

.....

.....

Q 8: Why is neo-natal period often termed as a plateau in development?

.....

.....

Q 9: What are the conditions that leads to increased activity in baby?

.....

.....



5.6 LET US SUM UP

After going through this unit, it can be summarized as-

- Pre-natal period being the first phase of human life. The approximate nine month period spent in mother's womb is known as the pre-natal period.
- An egg cell or ovum fertilized by a sperm cell is a zygote. When the zygote further divide into a mass of cells, it is known as **blastocyst** which will transform into an embryo which will further transform into a fetus and over a period of months the fetus will transform into an offspring.
- There are certain conditions that are determined at conception influencing the individual's later development. These are- hereditary Endowment (genes), sex of the newly created individual and the

number of Offspring.

- Every man and every women at conception received 23 chromosomes from each parent as a whole 46 in all.
- The **father** produces sperm of two kinds in equal number-one half of all mature sperm carry the X chromosomes and the other half carry Y chromosomes, i.e. **XY**. But, **mother** produces egg or matured ova all of one kind, each with a large X chromosomes, i.e., **XX**
- If the fertilized ovum or the zygote splits into two or more distinct part during the early stages of cell cleavage, it results in identical twins, triplets or multiple birth.
- The pre-natal period is divided into three stages-period of ovum, period pf embryo and period of foetus. Each of these stages are characterized by its own peculiar type of development.
- There are some conditions which may affect the baby and its development- Nutrition of the mother, Drugs, Age of the Mother, Birth Complication etc.
- The second important period after pre-natal is the neo-natal period. This period ranges from the time of birth to 10 -14 days post birth. The period right after birth is called as Neo-natal period or period of new born.
- Movements of body of the baby appear as soon as the foetus emerges from the mother's body.

  The baby who have been most active as foetus in mother's womb, tend to be more active during the neo-natal period. A long and difficult labour or heavy medication of the mother can cause the infant to be relatively inactive for the first few days after birth.



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5.8 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: Fertilization in humans refers to the fusion of male and female sex cell that facilitates the development of a new organism.

Ans to Q No 2: Zygote is a eukaryotic cell formed by the fertilization of two gametes. Thus, an egg cell or ovum fertilized by a sperm cell is a zygote.

Ans to Q No 3: When the zygote further divide into a mass of cells, it is known as blastocyst which will transform into an embryo which will further transform into a fetus and over a period of months the fetus will transform into an offspring.

Ans to Q No 4: A child receives 23 chromosomes from each parent at the time of conception.

Ans to Q No 5: It the mature ovum (X) is fertilized by Y-bearing spermatozoon, the offspring will be a Boy, but if the mature ovum (X) is fertilized by X- bearing spermatozoon, the offspring will be a Girl.

Ans to Q No 6: Period of ovum.

Ans to Q No 7: The word- “Neonate” is derived from the Greek word-”Neos” which means new and the Latin verb-“Nascur” which means-born

Ans to Q No 8: The neo-natal period is often termed *as a plateau in development*, because there is a temporary halt in the process of

growth and development. The rapid development of pre-natal period suddenly come to a stop with birth, this regression though lasts for a week after birth.

Ans to Q No 9: The following conditions leads to increased activity in baby-

- Hunger, pain and general discomfort give rise to great activity and activity tends to be less when the baby is nursed or fed by the mother.
- Removal of cloths and cover from the body.
- Environmental conditions like light, sounds produces increase in infant's activity.
- Crying and awakening.



5.9 POSSIBLE QUESTIONS

A. Short Questions (Answer each questions in about 150 words)

Q 1: How is a zygote form?

Q 2: Write about the neo-natal period.

Q 3: What is the role of chromosomes in human's life?

Q 4: State some mass activities of neo-nate.

B. Long Questions (Answer each questions in about 300-500 words)

Q 1: Discuss the process of life formation in mother's womb.

Q 2: Discuss the conditions that are determined at the time of conception.

Q 3: Elaborate the three stages of pre-natal period.

Q 4: Describe the factors that affects the pre-natal period of human development.

Q 5: What are the sub-stages of neo-natal period? Discuss the action and reactions of neo-natal period.

*** ***** ***

UNIT 6 : DEVELOPMENT OF NEW BORN INFANT

UNIT STRUCTURE

6.1 Learning Objectives

6.2 Introduction

6.3 Development of New Born Infant

6.3.1 Physical Development of New Born Infant

6.4 Sensations and Perceptions of New Born Infant

6.5 Physical Skills of New Born Infant

6.6 Early Cognitive Skills of New Born Infant

6.7 Let Us Sum Up

6.8 Further Reading

6.9 Answer To Check Your Progress

6.10 Possible Questions

6.1 LEARNING OBJECTIVES

After going through this unit, you will be able to-

- understand how development take place in new born infant
- identify the sensation and perception of new born infants
- list out the physical as well as early cognitive skills of new born infant.

6.2 INTRODUCTION

The discussion made in the later section of Unit 5 (sub-section 5.5) must have clarified your concept about neo-natal period and its different features. Neo-natal period is the most important period of human life as it introduces the baby with a completely new environment where he/she has to adjust outside the mother's womb. After being in mother's womb for about nine month, when the baby comes out, he/she faces a complete new world, he/she becomes independent unlike the pre-natal period. Parents and the other members surrounded by the baby also experiences variety of activities and development in the baby. Here in this unit, we will discuss

about the developmental aspects of the new born infants including their physical and cognitive skills. Moreover, the unit will also highlight on the sensations and perception of the new born baby.

6.3 DEVELOPMENT OF NEW BORN INFANT

According to Elizabeth Hurlock, infancy begins with birth and ends when the infant is approximately two weeks old. The neo-natal period can also be termed as infancy. Further many other psychologists consider that the period from birth to two years constitutes the infancy stage. The word *infant* is derived from the Latin word, "infans", which means unable to speak. When a human child learns to walk, the term toddler is used. According to standard dictionaries, the infancy or the period of new born infant is the beginning or the early period of existence as an individual rather than a parasite in the mother's body. Again, medical terminology recommends that an infant is a young child, but no specific age limits are placed on when the individual ceases to be an infant and becomes a child.

In the proceeding unit, we have discussed about the two sub-stages of pre-natal period in terms of period of partunate and period of neonate. Period of partunate begins when the fetal body has emerged from the mother's body and lasts until the umbilical cord has been cut and tied. The period of neonate begins from the cutting of the umbilical cord and last for the end of second week of post-natal life. The development of new born infant in their post-natal life begins to show in behaviour with their completion in adjustment in the new environment. Although the human life span legally begin at the moment of birth, birth is merely an interruption of the developmental pattern that started at the moment of conception. Development in new born infant is the graduation from an internal to an external environment.

Developmental Characteristics of New Born Infant –

- **Development back after a halt at birth:** The rapid growth and development which took place during the prenatal period suddenly come to a stop with birth. This regression in new born last for few days, after which the new born infant begins to improve. By the end of

the infancy period, the new born infant's state of development is usually back to where it was at the time of birth.

- **Development resumes after adjustment:** The new born infant has to make radical adjustment in the new environment in post-natal period outside the mother's body. Once the adjustment is completed, infant resumes their growth and development.
- **Development in new born is a preview of later development:** Though it is not possible to predict the individual's future development on the basis of the development apparent at birth, however, the new-born's development provides a clue to what to expect later on.
- **Development is hazardous for new infant:** New born infant face so many hazards in physical and psychological development as they have to make necessary radical adjustment.

6.3.1 Physical Development of New born infant

New born infants differ greatly in appearance and physical development during their post-natal period. The physical development of the new born are discussed under the following headings-

A. Size: At the time of birth, the average new born infant weighs about 7 ½ pounds and measures 19 ½ inches in length. Weight in relation to height is less at birth, on the average, in the more active foetus than in those who have been less active during pre-natal stage. Again, boys on the whole are slightly longer and heavier than girls.

B. New Born features: Development take place in the muscles of the neck and legs of new born than in those of the hands and arms. The skin of white infants becomes lighter as they grow older while that of non-whites becomes darker. The soft downy hair found on the head and neck starts disappearing in the new born infant. Infant with dark skin have dark brown eyes but they starts changing, become darker in time.

C. Physical proportion: The body proportion of the new born infant resembles a miniature adult. The head is approximately one fourth of the body length. The cranial region, the area over the eyes is proportionally much larger than the rest of the head. The chin is proportionally much too small. The tiny nose and mouth starts developing.

D. Muscle growth: A continuous growth occurs in case of muscles since the child is born. In the beginning, the muscle fibres happen to be small in size –in length, breadth and thickness. With age however, the new born infant gain in all these aspects as their muscles are soft.



LET US KNOW

- The word *infant* is derived from the Latin word, "infans", which means unable to speak.
- Weight in relation to height is less at birth, on the average, in the more active foetus than in those who have been less active during pre-natal stage. Again, boys on the whole are slightly longer and heavier than girls.
- With the birth cry, the lungs of the new born infant are inflated and respiration begins. The respiration rate at first ranges from 40-55 breathing movement per minute. By the end of the first week of life, it normally drops to approximately 35 per minute and become more stable.

6.4 SENSATIONS AND PERCEPTIONS OF NEW BORN INFANT

Sensory reaction is another significant feature in new born infant. Though accurate knowledge of sensory reaction of the infants is somewhat limited, however studies made on infants help us to believe that infants have a greater capacity for sensory discrimination. The best criterion that can be used to determine the presence or absence of sensory capacity is the motor responses to sensory stimuli that normally arise when the sense

organs of the new born infants are stimulated. However, it cannot be established that whether a motor response is made to a stimulus or whether the reaction is a part of general mass activity in new born infants. When the infant are drowsy or asleep or when they are pre-occupied with feeding, they will react differently to sensory stimuli that when their physical condition is better. The intensity of the stimulus has a profound influence on infant's reactivity to different sensory stimuli.

Sensory Capacity of the New born Infants:

As mentioned above, infants have a greater capacity for sensory discrimination. The sensory capacities of the new born infants can be discussed under the following headings-

A. Vision: New born infants are far from blind but their visual field is only about one half that of adult because the rods are not fully developed except around the fovea. Because of muscle weakness, the infant cannot focus both eyes on the same object simultaneously and as a result everything is seen as blur. There is some evidence that infants responds to differences in brightness. The ability to follow a moving object and then moving the eyes backward is developed gradually in new born infants. The horizontal eye movement is first developed than the vertical movements.

B. Hearing: Hearing is the least developed of all the senses at birth partly because the stoppage of the middle ear with amniotic fluid for several days after birth makes it impossible for sound waves to penetrate to the inner ear where the cells for hearing are located and partly because these cells are only partially developed. The capacity to hear normally improves within the first three or four days after birth as the amniotic fluid drains from the middle ear. Hence, the new born infant can determine the direction from which a sound is coming and he/she can discriminate the pitch and its intensity. The new born baby respond more to human voice than to other sounds. Very loud sounds increase the rate of heart palpitation and elicit body movements in them.

C. Smell: The cells for smell located in the upper part of the nose are

well developed at birth. Hence, the new born infant can distinguish odours by crying or turning head and attempts to withdraw from unpleasant stimuli and they responds to pleasant smell stimuli by sucking and relaxing the body.

D. **Taste:** The cell for taste which are located on the surface of the tongue and in the cheek area are too well developed in the new born baby. Hence the infant's sense of taste is keen. They react towards positive stimuli by sucking or relaxing the body and react towards negative stimuli such as-salty, sour and bitter by crying.

E. **Organic Sensitivities:** Sensitivity to hunger is fully developed at birth and hunger contraction occur within the first day of life. Thirst also appears then.

F. **Skin Sensitivities:** The sense organs for touch, pressure and temperature are well developed at birth and lie close to the surface of the skin. The skin of lip of the new born is especially sensitive to touch, while the skin on the trunk, thigh and forearms is less sensitive. Sensitivity to cold is more highly developed than sensitivity to heat. Again, sensitivity to pain is weak for the first day or two of post-natal life and then it improves rapidly. The pain responses are developed earlier in the anterior than the posterior end of the body.

Perception of the New born Infants:

Infants have a greater capacity for sensory discrimination. Likewise perception of the new born is another significant feature. The development of perception in new born infant is originally dependent on sensory development. Fortunately, in the first few weeks of life the sensory apparatus of a typical infant is in good working condition. Nevertheless his understanding of what is going on around him is negligible. All infants experience some disorganization for the first day or two after birth. This indicates that they are not entirely conscious of what goes on around them. Gradually, as the shock of birth goes off and their sense organ begins to function better, they become more conscious of their surroundings.

Consciousness of the New born Infants:

With the development of the sense-organs, the new born infants

become conscious about the surrounding though they may or may not react to it. The consciousness of the infant is markedly influenced by the depressant effects of drugs used during labour. Prematurely born infants take longer time to adjust to the ordeal of birth than the full term infants whose birth has been difficult. As such, it takes them even longer to become conscious of what goes on around them.



CHECK YOUR PROGRESS

Q 1: What is the derivative meaning of Infant?

.....

.....

Q 2: Fill in the blank-

Development in new born infant is the graduation from ..... environment.

Q 3: What is the average size of a new born at birth?

.....

.....

Q 4: What are the skin sensitivities of new born baby?

.....

.....

6.5 PHYSICAL SKILLS OF NEW BORN INFANT

In unit 5, we have discussed about the different reflexes of new born infant. These reflexes indicates the physical skills or movement in new born infants. The physical skills in the baby develops as soon as the foetus emerges from the mother's body with the first movement. Because of the neurophysiological immaturity of the infant, one could not expect its movement to be co-ordinated or meaningful.

During the pre-natal period, the foetus faces the task of preparing itself for the birth process and to overcome the odds against normal development. Hence, the new born infant has the capacity for all life sustaining activities or skills such as-breathing, sucking and swallowing and discharging bodily waste. Physical development in infants is fast.

Physical development pertains to the baby's bodily growth, fine and gross motor skills and the abilities of various organs of the body. When a baby achieves a new physical skills, his life improves.The new born infants can display several reflexes or physical skills which aids him/her in the adjustment to the new world. Some of the physical skills of the new born infant in terms of reflexes are listed below-

1. **Rooting Reflex or Skill:** The new born infant responds to pressure or touch on the neck by turning the head towards the touch or opening the mouth. This automatic and involuntary responses or reflexes are known as rooting reflex or skill. This skill helps the baby feed from the mother by orienting her to the mother's breast or bottle.
2. **Sucking Reflex:** Feeding is further facilitated by sucking reflex or skill by which the new born sucks on any object placed into the mouth.
3. **Head Turning:** One of the most important physical skill displayed by the new born is head turning. The rooting reflex disappears over the first week of life and it is replaced by voluntary head turning.
4. **Head Up:** The growth in neck muscles helps the baby to hold the head up when lying flat on the tummy. It is an important physical development milestone, which indicates improved muscle strength and flexibility.
5. **Startle Reflex:** If someone makes a loud noise or startle a new born baby in some other way, the reaction would be a stretch or a shiver. This reflex is called as startle reflex.
6. **Grasp Reflex:** The grasp reflex is another important reflex in the new born which is linked to the later ability to hold on to object.
7. **Babinski Reflex:** If the bottom of the foot is stroked with a finger or pencil, the new born reacts by fanning out its toes. This is called Babinski reflex.

Hence, these reflexes are the starting point for many important physical skills including reaching out, grasping and walking. Besides these reflexes, a new born infant possesses a large repertoire of tasks. He/she can suck, salivate, hiccup, vomit, yawn, stretch, sneeze, kick, shiver, and blink. Crying plays an important role in initiating physical movement in baby

as crying infant squirms, kicks, turns his head from side to side and extends his arms, legs, fingers and toes.



ACTIVITY 6.1

List out the physical activities exhibited by a new born infant in your family or in the neighborhood.

6.6 EARLY COGNITIVE SKILLS OF NEW BORN INFANT

Though, cognitive skills in the new born infant is not much developed and recognized, but some of the activities or reflexes exhibited by the new born infant ca be considered as early cognitive skills. Much before birth, the fetus responds to sounds and within few hours after birth, the new born baby can distinguish between different sounds of language. The new born can too *distinguish between mother's voice and other human voice*, hence the baby can responds to sounds. Moreover, the baby can follow a moving object put in front of him/her. If parents or other family members put moving finger in front of the baby, he/she can respond through blinking.

Jean Piaget's theory of cognitive development suggests that children move through four different stages of mental development. **A. Sensorimotor stage: birth to 2 years B. Preoperational stage ages 2 to 7, C. Concrete operational stage: ages 7 to 11 and D. Formal operational stage: ages 12 and up.** As such cognitive development take place since the time of birth. Piaget's theory describes the cognitive development of children. Cognitive development involves changes in cognitive process and abilities. In Piaget's view, early cognitive development involves processes based upon actions and later progresses to changes in mental operations. The infant knows the world through their movement and sensation. The new born learn about the world through basic actions such as sucking, grasping, staring and listening.

During this earliest stage of cognitive development, infants acquire knowledge through sensory experiences and manipulating objects. A child's entire experience at the earliest period of this stage occurs through basic

reflexes, senses, and motor responses.

It is during the sensorimotor stage that children go through a period of dramatic growth and learning. As kids interact with their environment, they are continually making new discoveries about how the world works. The cognitive development that occurs during this period takes place over a relatively short period of time and involves a great deal of growth.



CHECK YOUR PROGRESS

Q 5: What is Rooting Reflex?

.....

.....

Q 6: What are the four stages of Jean Piaget's theory of cognitive development?

.....

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6.7 LET US SUM UP

After going through this unit, it can be summarized as-

- Neo-natal period is the most important period of human life as it introduces the baby with a completely new environment where he/she has to adjust outside the mother's womb.
- According to Elizabeth Hurlock, infancy begins with birth and ends when the infant is approximately two weeks old.
- The word-infant is derived from the Latin word-"infans" which means unable to speak.
- According to standard dictionaries, the infancy or the period of new born infant is the beginning or the early period of existence as an individual rather than a parasite in the mother's body.
- Development in new born infant is the graduation from an internal to an external environment.

- Developmental Characteristics of New Born Infant – development back after a halt at birth, development resumes after adjustment, development in new born is a preview of later development, and development is hazardous for new infant.
- New born infants differ greatly in appearance and physical development during their post-natal period.
- At the time of birth, the average new born infant weighs about 7 ½ pounds and measures 19 ½ inches in length.
- With the birth cry, the lungs of the new born infant are inflated and respiration begins. The respiration rate at first ranges from 40-55 breathing movement per minute. By the end of the first week of life, it normally drops to approximately 35 per minute and become more stable.
- Sensory reaction is another significant feature in new born infant. Though accurate knowledge of sensory reaction of the infants is somewhat limited, however studies made on infants help us to believe that infants have a greater capacity for sensory discrimination.
- The development of perception in new born infant is originally dependent on sensory development.
- With the development of the sense-organs, the new born infants become conscious about the surrounding though they may or may not react to it.
- Physical development in infants is fast. Physical development pertains to the baby's bodily growth, fine and gross motor skills and the abilities of various organs of the body. When a baby achieves a new physical skills, his life improves.
- Though, cognitive skills in the new born infant is not much developed and recognized, but some of the activities or reflexes exhibited by the new born infant ca be considered as early cognitive skills.
- The new born can too *distinguish between mother's voice and other human voice*, hence the baby can responds to sounds.
- During this earliest stage of cognitive development, infants acquire knowledge through sensory experiences and manipulating objects.



6.8 FURTHER READING

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2) Goswamee Gayatree (2008): Child Development and Child Care, Arun Prakashan, Guwahati, Assam.
3) Hurlock Elizabeth B (1980): Developmental Psychology: A life-span Approach, Mc Graw Hill Companies, Inc., New York.
4) Mangal S.K (2006 2nd Edition): Advanced Educational Psychology, Published by Asoke K Ghosh, Prentice Hall of India Private Limited, New Delhi.



6.9 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: The word-infant is derived from the Latin word-"infans" which means unable to speak.

Ans to Q No 2: Development in new born infant is the graduation from an internal to an external environment.

Ans to Q No 3: At the time of birth, the average new born infant weighs about 7 ½ pounds and measures 19 ½ inches in length

Ans to Q No 4: Skin Sensitivities in new born means the sense organs for touch, pressure and temperature are well developed at birth and lie close to the surface of the skin. The skin of lip of the new born is especially sensitive to touch, while the skin on the trunk, thigh and forearms is less sensitive. Sensitivity to cold is more highly developed than sensitivity to heat.

Ans to Q No 5: The new born infant responds to pressure or touch on the neck by turning the head towards the touch or opening the mouth.

This automatic and involuntary responses or reflexes are known as rooting reflex or skill.

Ans to Q No 6: The four stages of Jean Piaget's theory of cognitive development are-

A. Sensorimotor stage: birth to 2 years

B. Preoperational stage ages 2 to 7,

C. Concrete operational stage: ages 7 to 11 and

D. Formal operational stage: ages 12 and up.



6.10 POSSIBLE QUESTIONS

A. Short Questions (Answer each questions in about 150 words)

Q 1: What are the Developmental Characteristics of New Born Infant?

Q 2: Why Development is in new born considered as preview of later development?

Q 3: Write about the perceptual development in new born.

B. Long Questions (Answer each questions in about 300-500 words)

Q 1: Discuss the physical development in new born infant.

Q 2: Discuss the Sensory Capacity of the new born Infants.

Q 3: Explain the physical and cognitive skills in new born infants.

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UNIT 7 : DEVELOPMENT THROUGH THE FIRST YEAR

UNIT STRUCTURE

7.1 Learning Objectives

7.2 Introduction

7.3 Basic Dimensions of Child's Development

7.4 Concept of Infancy

7.5 Principles of Physical Development

7.6 Concept of Imitation and Cognition

7.7 Concept of Social Development

7.7.1 Structure of Social Development in Infancy

7.8 Attachment and Separation

7.9 Let Us Sum Up

7.10 Further Reading

7.11 Answers To Check Your Progress

7.12 Possible Questions

7.1 LEARNING OBJECTIVES

After studying this unit, you will be able to:

- understand the concept of development of a child through the first year
- explain the principles of physical development
- describe the development of imitation and cognition of a child in the first year
- explain the social development through the first year
- describe the concept of attachment and separation.

7.2 INTRODUCTION

Development is the process that creates growth, process or new information or an event. Development refers to a progressive increase in skill and capacity of function. It is a qualitative change in the child functioning.

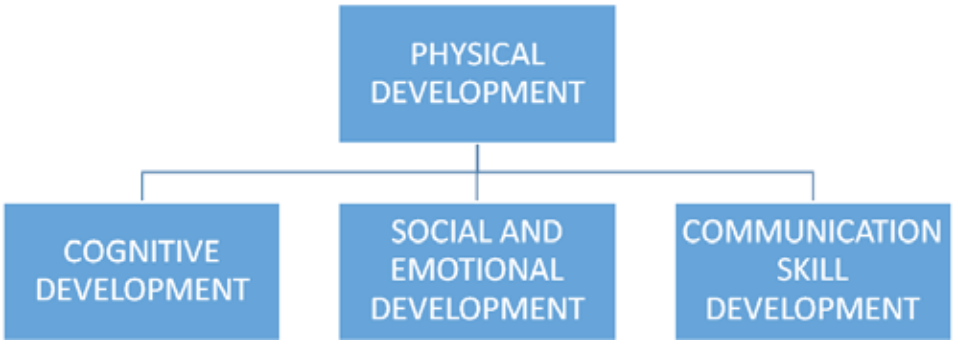
It can be measured through observation. A child is a living organism with biological foundations and he grows up in a social environment. This 'growing up' is the process of development that results from the interaction of the biological foundations with the social environment.

According to E. Hurlock, The term 'development' means a progressive series of changes that occur as a result of maturation and experiences. Development implies qualitative change. This change does not mean only physical changes like height or improving ones abilities but a complex process of integrating many structures and functions. A very significant fact about development is that establishment of behaviour early in life greatly determine how individuals adjust in later life.

The developmental process in a human being is never static. From conception to death changes take place constantly both in the physical and psychological dimensions. The process of development is continuous and cyclic. From the very start of the pre-natal stage in the mother's womb, changes start in the physical and mental structure of the individual. Gradually, these changes become perceptible.

7.3 BASIC DIMENSIONS OF CHILD'S DEVELOPMENT

There are four basic dimensions in which an individual's development occurs-



1. **Physical development**: It includes development of the external and internal body parts. The height and weight increase with age and the internal organs like the heart, lungs, stomach etc. also grow and develop as an individual grows. This development also involves large motor skills and fine motor skills.

2. **Cognitive development**: This is centered on a child's ability to learn and solve problems. An infant learning to respond to another person's facial expression or gestures and a child learning the alphabets are both examples of cognitive development.
3. **Social and Emotional development**: These are centered on a child gaining a better understanding of his own emotions and the emotions of others. This involves learning how to interact and play with other people.
4. **Communication skill development**: This involves both language and non-verbal communication. Communication skills development helps a person to express his ideas and opinion in front of others.

7.4 CONCEPT OF INFANCY

The first stage of an individual's life after birth is infancy. The developmental period of the newborn infant or 'neonate' is from birth to fourteen days, which is already discussed in the previous unit. Infancy is regarded as the 'foundation age' as at this period many behavior patterns, many attitudes and many patterns of emotional expression are being established.

Characteristics of infancy:

The characteristics of infancy are of particular importance because only in understanding they will help the parents and others to guide proper development in the infant.

1. **A foundation age:** Infancy is a true foundation age because at this time, many behaviour patterns, attitudes or emotional expression are established and they continue to the later life. The period of infancy is very important in setting a pattern for personal and social adjustments.
2. **Rapid growth and change**: Infants grow very rapidly, both physically and psychologically and with this rapid growth comes a change not only in appearance but also in capacities. During this period there is a gradual but very prominent decrease in helplessness after every week or month. The baby develops the ability to recognize and respond to people and objects in the environment.

3. **Age of decreasing dependency**: The gradual decrease in depending on others results from the rapid physical and intellectual development and body control which enables babies to sit, stand and walk and also to manipulate objects. The random movements of the neonate are gradually replaced by coordinated movements.
4. **Age of increased individuality**: Signs of increased individuality shows during infancy itself. Infants develop according to their interests and abilities. It must therefore be remembered that as individuality increases, so does the necessity for treating each infant as an individual.
5. **Beginning of socialization**: The infant also show willingness to become a part of the social group. One of the way in which an infant shows his interest in becoming social is by attachment behavior.



CHECK YOUR PROGRESS

Q 1: What do you mean by Development?

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.....

Q 2: What are the basic dimensions of a child's development?

.....

.....

Q 3: Write one characteristic of Infancy.

.....

.....

7.5 PRINCIPLES OF PHYSICAL DEVELOPMENT THROUGH THE FIRST YEAR

In this unit, you will also be able to understand the principles of physical development through the first year.

1. **Cephalocaudal principle**: The cephalocaudal principle states that growth follows a direction and pattern that begins with the head and upper body parts and then proceeds to the rest of the body. According to this principle, a child develop visual abilities (located in the head)

well before they master the ability to walk (closer to the end of the body).

2. **Proximodistal principles**: The proximodistal principles states that development proceeds from the center of the body outward. With this principle the trunk of the body grows before the extremities of the arms and legs. Development of the ability to use various body parts of the body also follows the proximodistal principles. For instance, effective use of the arms precedes the ability to use the hands.
3. **Hierarchical integration**: The principle of hierarchical integration states that simple skills typically develop separately and independently, but that these simple skills are integrated into more complex ones. Thus, the relatively complex skill of grasping something in the hand cannot be mastered until the developing infant learns how to control and integrate the movements of the individual fingers.
4. **Independence of systems**: The principle of the independence of systems suggests that different body systems grow at different rates. For instance the patterns of growth for body size, the nervous system and sexual maturation are quite different

7.6 DEVELOPMENT OF IMITATION AND COGNITION

Concept of imitation:

Imitation is a crucial aspect of skill development because it allows a child to learn new things quickly and efficiently by watching. Imitation involves a child's ability to copy others.

Meltzoff (2007a, 2007b; Meltzoff and Moore, 1997) has proposed that new born infants possess a mechanism that automatically matches visual input from the behaviour of others to mental representations of the infant's own behaviour to produce imitation. The first association to affect the infant's behaviour is centrally between the sounds made by the infant and the imitating parent. Thus, the strong tendency of infants' social partners to imitate the infant's behavour is likely to contribute substantially to the development of cognitive representations of the appearance and locations of infants own body parts. Imitation of the infants is central to the development

of two crucial components of a dynamic imitation system – the infant's knowledge of her own body parts and actions and the infants ability to map that knowledge onto her knowledge of the body parts and actions of others.

Concept of Cognition:

It is a term referring to the mental processes involved in gaining knowledge and comprehension. It encompasses many aspects of intellectual functions and processes such as perception, attention, thought, the formation of knowledge, memory, etc. Piaget's theory of cognitive development is a comprehensive theory about the nature and development of human intelligence. The basic four principles to Piaget's infant cognitive development are schemas, assumption, accommodation and adaption. Schemas are defined as build blocks of knowledge. Assimilation is using an existing schema to deal with a new object or situation. Accommodation happens when the existing schema does not work and needs to be changed to deal with a new object or situation. Adaption occurs when assimilation and accommodation are achieved and it permits the transition from one stage to another.

Piaget's theory of Cognitive development:

Jean Piaget, the famous psychologist formulated a famous theory of intellectual development in children, which helps to understand how thinking in a child develops. According to him two intellectual traits characterize children's thoughts- "realism" and "animism". The small infant cannot distinguish clearly between himself and the other things. In early infancy the child also is not able to distinguish much between the physical things and psychological feelings and therefore tends to get confused with reality. According to Piaget, realism is the tendency of the child to treat thoughts and dreams as physical events and the tendency of the child to give psychological attributes to physical objects is called animism. The child believes that the button, shirt, furniture etc. all have feelings of pleasure and pain as he considers them to be animate. On the basis of his studies Piaget suggested four stages in the development process of the child's thoughts-

(a) Any object can be conscious and if is moved, it can feel.

(b) Anything which possesses some kind of movement, like a bicycle, or even the wind, may feel.

(c) Any object that can spontaneously move like the sun or moon are conscious.

(d) Finally, only people or animal can be conscious. This happen mainly during childhood.

According to Piaget, the basis of behaviour starts through sensation and this stage is therefore called by him as the sensory-motor stage. He emphasized that the sensory-motor experiences have significant and probably irreversible effects on his later life.

Piaget describe that between one and half years to 2 years an infant starts understanding that objects have substance, occupy space and are permanent. He gradually can find difference between himself and other people and things in the environment. The child will also become aware of the relationship between different objects and can understand about mass, weight and volume of things. All these capabilities depend on the mental age rather than the chronological age. In other words, the cognitive development determines the infant's the ability to think, understand and manipulate things in his surroundings.



CHECK YOUR PROGRESS

Q 4: Mention the Principles of physical development through the first year.

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Q 5: Write the concept of Imitation and Cognition.

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7.7 SOCIAL DEVELOPMENT THROUGH THE FIRST YEAR

Concept of social development:

Development is essential aspect for the individual as well as the process of socialization. Social development is a process that result in the transformation of social structures to improve the capacity of a society in order to fulfil its objectives.

Social development can be defined by E.B. Hurlock as "Social development is the attainment of maturity in social relationship. Garret regards social development as the process whereby the biological individual is connected into a human person. Babies are born social creatures from their earliest days, they begin to connect to and collect information from caregivers. Newborn are capable of imitating facial expressions, demonstrating and understanding of how another actions relate to their own.

Children grow and develop rapidly in their first five years across the four main areas of development. These areas are motor, communication and language, cognitive and social and emotional. Positive social development is important. This development influence a child's self-confidence and empathy.

7.7.1 Structure of social development in Infancy (first year)

The social development in infancy through the first year is discussed under the following age headings-

A. 0-2 months old: From birth, babies are beginning to collect information about their world as they connect with their caregivers through each interaction. Newborn begin to recognize and respond to their caregivers with smiling, cooing and giggling which indicates their understanding of their actions with others. The first months lay the foundation for the baby's sense of security and safety leading to their ability to trust

those around them, which is a crucial part of social development.

B. **3-6 months old**: At three months old, baby's interaction provides an opportunity to form a deeper bond with their caregivers, deepening their sense of security that will allow to feel safe to explore and grow.

C. **6-9 months old**: The social development is infancy skyrockets at six months. At this point we begin to see the baby's temperament and personality. The baby begin to pronounce consonants and strings their babbles together. The baby starts recognising his/her own name and even begin to express emotion, such as anger, frustration or happiness. Babies may also begin to experience separation anxiety during this period as they develop object permanence. Their understanding that an object or person exist when out of sight.

D. **10-12 months old**: During 10 to 12 months babies begin to mimic certain actions, such as waving, talking on the phone. They also understand simple concepts such as "give" or "no". During this period, babies are responsive and eager to play with their caregivers but they may be fearful of new faces and spaces. They also tend to get cling on greatly to their mothers or to the family members they recognize when in new situations.

7.8 ATTACHMENT AND SEPERATION

Concept of Attachment:

According to Ainsworth and Bowlby, attachment is defined as a strong emotional bond that seeks to bind one person to another and is characterized by a tendency to seek and maintain a closeness- both physically and emotionally to that specific figure of which the bond to has been developed.

Infants are very social. They seek comfort and show a wide range of emotion from birth. The emotion allows the infant to form emotional attachments with their caregivers. Infants progress through stages when

they form these emotional attachments. For the healthy development of infant it is necessary that there is a cordial relationship between the father, mother and other members of the family who are likely to influence the personality development of the infant. Cordial relationship between the various members of the family gives a sense of self-security and affection to the infant. At this time of birth the human infant is physically helpless. It is true that newborn baby can make a number of responses, but he is completely dependent upon others for his survival. From the very start, some of his responses elicit behaviours from people who happen to be in the immediate environment. As a result, others try to meet his physical needs and there develops a sense of attachment.

According to **Bowlby,** there are four phases of attachment during infancy:-

(1) Pre-attachment phase

(2) Attachment in-making phase

(3) Clear-cut attachment phase

(4) Formation of reciprocal relationships phase

1. Pre-attachment phase: In the pre-attachment phase, which spans from birth to about age of 6 weeks, babies automatic reflexes and activities such as grasping, crying and rooting will cause caregivers to want to attach to babies. Caregivers will feel needed and want to meet all their babies' needs. However, at this time, babies are not yet attached to any one caregiver, and they do not care if they are held or cared for by stranger. During this phase, babies sometimes respond to social interaction from caregivers.This interaction help increase their mental, emotional and social growth and learning.

2. Attachment in the making phase: During the attachment in making phase, which spans from about age 6 weeks to about 6 to 8 months, babies begin to react differently and more quickly to primary caregivers than strangers and they starts building trust in caregivers to fulfil needs. They slowly start to count on their caregivers to take care of them. However, infants at this stage are still not distressed at being separated from particular caregivers. During this stage, they continue to make gestures and actions that help encourage caregivers to bond with

them. Babies begin making eye contact around age 2 months and can smile intentionally between ages 3 to 5 months and start reaching for familiar people and caregivers

3. **Clear-cut attachment phase**: During the clear-cut attachment phase from about 6 to 8 months to age 18 to 24 months, babies become solidly attached to their caregivers and separation anxiety emerges. Babies want to maintain contact with main caregivers and they expresses their displeasure in ways such as clinging to mom, following grandma around the door or crying when father leaves. During this phase, babies also begin to develop social skills and interactions than attachment alone. They also like to participate in social rituals like saying hello and goodbye. Babies during this period also begin social referencing, looking for social cues from other people's emotional and physical reactions to new stimulate in order to know how they should respond.
4. **The foundation of reciprocal attachment**: The final phase of attachment, the formation of reciprocal relationships, spans from about age 18 months to 24 months, is a time when babies starts negotiating with caregivers to meet their needs and to keep them feeling safe and attached. They start expressing their needs and desires in order to keep feeling satisfied. Also during this time, babies starts to understand "no"and others boundaries that make certain objects and activities off-limits. Social interaction continue to mature as they observe family routine and start to participate in them

Concept of Separation:

Separation implies the physical removal of children from the caregivers whom they are attached. Focus is made on separation between birth and age two because during that period children rely on physical proximity as the primary indicator of their mother availability. In the early weeks babies develop emotionally and physically from having all their needs closely met. Babies gradually have to learn to tolerate being part of a wider community where the needs of other children and mother herself also have to be met.

Parents feel happy when they find that the infant gradually gets conscious of his 'self'. The development of this consciousness talks sometime and there are individual differences in this respect, because all the children donot language and understanding enables him to acquire a wider control over his environment in the family.

As the infant grows he acquires greater control over his environment. Gradually, he is able to sit, crawl, stand and walk and reach the place he wants to go. He grows in height and weight according to his developing age. This growth also enables him to show wider physical and mental activities characteristic of his age.



7.9 LET US SUM UP

After going through the unit, it can be summarized as –

- Development is the process that creates growth, process or new information or an event. Development refers to a progressive increase in skill and capacity of function.
- The developmental process in a human being is never static. From conception to death changes take place constantly both in the physical and psychological dimensions. The process of development is continuous and cyclic.
- There are four basic dimensions in which an individual's development occurs: Physical development: It includes development of the external and internal body parts. The height and weight increase with age and the internal organs like the heart, lungs, stomach etc. also grow and develop as an individual grows. This development also involves large motor skills and fine motor skills.
- Cognitive development: This is centered on a child's ability to learn and solve problems. An infant learning to respond to another person's facial expression or gestures and a child learning the alphabets are both examples of cognitive development.

- Social and Emotional development: These are centered on a child gaining a better understanding of his own emotions and the emotions of others. This involves learning how to interact and play with other people.
- Communication skill development: This involves both language and non-verbal communication. Communication skills development helps a person to express his ideas and opinion infront of others.
- Infancy is regarded as the 'foundation age' as at this period many behaviour patterns, many attitudes and many patterns of emotional expression are being established.
- Principles of physical development through the first year are- Cephalocaudal principle, Proximodistal principles, Hierarchical integration, Independence of systems.
- Imitation is a crucial aspect of skill development because it allows a child to learn new things quickly and efficiently by watching. Imitation involves a child's ability to copy others.
- Cognition is a term referring to the mental processes involved in gaining knowledge and comprehension. It encompasses many aspects of intellectual functions and processes such as perception, attention, thought, the formation of knowledge, memory, etc.
- Jean Piaget, the famous psychologist formulated a famous theory of intellectual development in children, which helps to understand how thinking in a child develops. According to him two intellectual traits characterize children's thoughts- "realism" and "animism".
- Social development can be defined by E.B. Hurlock as "Social development is the attainment of maturity in social relationship. Garret regards social development as the process whereby the biological individual is connected into a human person.
- Attachment is defined as a strong emotional bond that seeks to bind one person to another and is characterized by a tendency to seek and maintain a closeness- both physically and emotionally to that specific figure of which the bond to has been developed.
- Focus is made on separation between birth and age two because

during that period children rely on physical proximity as the primary indicator of their mother availability.



7.10 FURTHER READING

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7.11 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: Development is the process that creates growth, process or new information or an event. Development refers to a progressive increase in skill and capacity of function. It is a qualitative change in the child functioning. It can be measured through observation.

Ans to Q No 2: Physical development, Cognitive development, Social and

Emotional development and Communication skill development.

Ans to Q No 3: One characteristic of infancy is **Rapid growth and change**: Infants grow very rapidly, both physically and psychologically and with this rapid growth comes a change not only in appearance but also in capacities. During this period there is a gradual but very prominent decrease in helplessness after every week or month. The baby develops the ability to recognize and respond to people and objects in the environment.

Ans to Q No 4: Principles of physical development through the first year are as follows: Cephalocaudal principle, Proximodistal principles, Hierarchical integration, Independence of systems.

Ans to Q No 5: Imitation is a crucial aspect of skill development because it allows a child to learn new things quickly and efficiently by watching. Imitation involves a child's ability to copy others.

Cognition is a term referring to the mental processes involved in gaining knowledge and comprehension. It encompasses many aspects of intellectual functions and processes such as perception, attention, thought, the formation of knowledge, memory, etc.



7.12 POSSIBLE QUESTIONS

A. Short Questions (Answer each questions in about 150 words)

Q 1: Define Development.

Q 2: Mention the basic dimensions in which an individual's development occurs.

Q 3: Write two characteristics of Infancy.

Q 4: Mention the principles of physical development through the first year.

Q 5: What do you mean by Imitation?

Q 6: What do you mean by Cognition?

Q 7: Who developed the theory of cognitive development?

Q 8: What do you mean by Social development?

B. Long Questions (Answer each questions in about 300-500 words)

Q 1: Discuss the dimensions of physical development of an infancy.

Q 2: Explain the characteristics of infancy.

Q 3: Discuss the principles of physical development in infancy period.

Q 4: Briefly discuss the concept of Imitation and Cognition.

Q 5: What is social development? Discuss the social development in infancy timeline.

Q 6: Explain the concept of Attachment and Separation in infancy stage.

Q 7: Discuss the four phases of attachment during infancy.

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UNIT 8 : DEVELOPMENT IN THE TODDLER

UNIT STRUCTURE

8.1 Learning Objectives

8.2 Introduction

8.3 Physical Changes in a Toddler

8.3.1 Physical Developmental Aspects in a Toddler

8.4 Development of Language in a Toddler

8.5 Cognitive Development of a Toddler

8.5.1 Jean Piaget's Theory of Cognitive Development

8.6 Social Development of a Toddler

8.7 Importance of Family in Social Development of a Toddler

8.8 Importance of Peers in the Social Development of a Toddler

8.9 Let Us Sum Up

8.10 Further Reading

8.11 Answers To Check Your Progress

8.12 Possible Questions

8.1 LEARNING OBJECTIVES

After studying this unit, you will be able to:

- understand the concept of development in the toddler
- explain the physical changes in a toddler
- describe the development of language in a toddler
- comprehend the cognitive development in a toddler
- explain the social development in a toddler
- realize the importance of family and peers in the development of a toddler.

8.2 INTRODUCTION

The life of an individual starts from the very moment of conception in the mother's womb. The birth of the individual is a natural event of life. It enables him to come out of the internal environment of the mother's womb

and be in communion with the external environment wherein he has to promote his growth. This growth is continued till death and it has to undergo several changes of all types- physical, mental, emotional, and social, etc. The successive changes that occur from time to time in these types are known as development. The first stage of an individual's life after birth is infancy. The first year of a child is infancy period and from the first year (12 months) to 2-3 years is the period of toddler. A toddler is a child approximately 12 to 36 months old, though its definitions vary. The toddler years are a time of great cognitive, emotional and social development. The word toddler is derived from the word "toddle" which means to walk unsteady like a child of this age.

8.3 PHYSICAL CHANGES IN A TODDLER

There is no exact age at which all infants should be able to grasp object or hold up their heads without support. Physical development occurs at different times for all children depending on many factors such as the child's unique characteristics, the family's values and culture and available resources certain conditions must exist for a toddler to grow and develop. A young child's basic need or physical needs include: Food, shelter, warmth, clean air and environment, health and dental care and activity and rest.

Physical development including gross and fine-motor skills, consumes the interest of toddlers as they practice learned skills and look to develop new ones. Healthy physical development is dependent upon nutrition, brain development, the central nervous system, muscles, bones and the interactions and experiences that are offered to toddlers. Recognizing developmental delay during toddlerhood for the early intervention is more effective than if the delays were not acknowledged until childhood. Delays in physical development may affect more than gross and fine-motor skills. For example: - If a toddler is unable to smile at his parents or lift his arms to be picked up than this can impact social and emotional development.

8.3.1 Physical Development Aspects in a Toddler

There are marked changes reading the different development aspects in a toddlerhood, these are discussed below:-

Physical Development aspects:

Toddlerhood is a period of rapid growth and development. There are marked changes regarding the different developmental aspects from birth till the period of infancy ends, i.e., at the end of two years. The different aspects are discussed below:

The physical development of a toddler is very rapid and it can be easily studied under the following heads-

- **Height and weight:** At four months after birth the infant measured almost 23 and 24 inches and at one year he measures between 28 and 30 inches and at two years between 32 and 34 inches. The toddler's weight is almost double when the infant is four months old. At one year, babies' weight, on the average, is three times their weight at birth. This is mainly due to the increase in fat tissue.
- **Nervous proportion**: Head growth gradually slows down while the chest and limbs growth increases. Thus the toddler slowly becomes less top heavy and appears more slender, though the head covers one-fourth of the body at birth.
- **Bones development**: The number of bones increases during toddlerhood, particularly the second year of life. The soft spot on the skull closes by the age of the end of two years.
- **Muscles and fat**: Muscles are developed at birth. They grow slowly and are weak during the initial period of toddlerhood. On the contrary, fat tissues develop very rapidly during toddlerhood mainly due to the fat content of milk, the main food of the baby.
- **Sense organ development**: By the age of three months the eyes of muscles of the babies are well developed and coordinated to enable him to see clearly and distinctly and

also to see colors. Hearing capability also develop very rapidly during this time. Smell and taste which are well developed at birth continue to improve further during toddlerhood. Toddlers respond quickly to touch stimuli because of the thin texture of their skin. They relate very well to pressure, pain and temperature.

8.4 DEVELOPMENT OF LANGUAGE IN A TODDLER

Language plays a vital role in the personality and social development of the child. The development of language is connected with the physical and mental development of a person. One is able to use language only after attaining a definite physical and mental maturation. So long as his vocal organs do not mature properly, he cannot pronounce words correctly and clearly. Speech is the main medium of communication between individuals. To be able to communicate with others, all individuals must be capable of two functions-

a) The ability to understand the meaning of what others are trying to communicate.

b) To communicate to others what they can understand.

Communication can be in any form of language- written, spoken, gestures, postures, musical, artistic expression but the most common is the spoken form. The foundation of speaking is laid in infancy itself though the ability to understand clearly happens generally in toddlerhood. Babbling which occurs after few months is important because speech develop from it eventually.

The first sound of the toddler is natural and its differentiation is not possible. But after some days, it may be connected with hunger, heat, cold and thirst because its sounds for all these are of particular nature. In the beginning, its sounds are mainly vowel sounds, as ‘aaa’ ‘ee’ ‘al’ etc. After that it can produce consonant and vowel sounds both as MA, MAMA, PA, PAPA, etc with all these haphazard sounds, it gradually improves its language skills.

When the toddler reproduces the sound MAMA, MUM, PA or PAPA, it shows a response to it by considering it a stimulus for listening. When it hears itself reproducing the sound MAMA several times, it connects the sound 'MAMA' with its speaking activity. When the toddlers has learnt to speak 'MAMA' any adult can stimulate or condition it to speak some meaningful word like CAT, DOG, or RAT by pointing to these animals when present nearby. Thus with the help of some stimulus, the child learns to speak MAMA or CAT. A growing child can imitate some meaningful word only when it has reproduced the sound in its spontaneous language response.

The development of the child proceeds according to general principles of language development. Just as in motor development, the toddler succeeds in displaying distinct and definite movements by proceeding from indistinct and indefinite movements. Similarly in language development also it learns to reproduce specific and meaningful sounds by producing indistinct and indefinite sounds in the beginning

Language development involves the following

- **Pronunciation**: The toddlers learns to pronounce words clearly by end of second year by imitating parents and others adults. This is the second stage of language development. About the age of 18 to 24 months toddlers produce real words and partly trial and error sentences. While they are only capable of producing few short sentences at this time, it should be realized that they are able to understand more. Toddlers begin to understand language about twice as fast as they are able to produce it.
- **Vocabulary build up**: Toddlers learns and follows simple one-step direction and commands. The toddlers starts expanding vocabulary at this stage. By 24 months the toddlers starts using about 50 words regularly. The year between 12 and 24 months is the most exciting year in terms of language development. However they do not have idea about pronouns, preposition and conjunction. Vocabulary increase with age and maturation.
- **Sentences**: The toddles first real sentences usually appears between

eighteen and twenty-four months, and generally consists of simple words accompanied by a bodily gesture. Gradually the toddlers uses more words in their sentences but gestures are still predominant through infancy and well into childhood.



CHECK YOUR PROGRESS

Q 1: Which period is known as the period of toddlerhood?

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.....

Q 2: The word toddler is derived from which word?

.....

.....

Q 3: Mention the heads through which physical development of a toddler can be studied.

.....

.....

Q 4: Mention one important aspect of language development in a toddler.

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.....

8.5 COGNITIVE DEVELOPMENT IN A TODDLER

Cognitive development refers to the development of the capabilities of knowing, thinking, reasoning, understanding, remembering, etc. Cognitive units include images, symbols, concepts, etc.

Images retain in the mind the similarities and relations between significant elements of the child's experience.

Symbols represent objects, events or even actions. The most commonly used symbols are represented by sign letters.

Concepts are the abstracts characteristics of objects, events or actions. The development of concepts results from associations of meanings with objects, people and situations.

Cognition may be direct and indirect. Direct cognitive abilities refer to the processes that occurs when a child tries to solve a problem. Cognitive activities are indirect when the child engages in the free associations or refer to dreams. The behavior of a normal baby shows that ability to form concepts develops very rapidly.

8.5.1 Jean Piaget's Theory of Cognitive Development

The famous Swiss psychologist Jean Piaget has made the most significant contribution in the study of cognitive development of children. We have already discussed briefly in the previous unit but let us discuss about the theory in detail -

Jean Piaget was the first to make systematic study of the acquisition of understanding how thinking in a child develops. According to him intellectual traits characteristic thoughts –"relation and "animism".

According to Piaget's realism is the tendency to the child to treat thoughts and dreams as physical events and the tendency of the child to give psychological attributes to physical objects is called animism.

Piaget believed that cognitive development takes place through four fundamental stages. All children have to pass through these stages to reach the next higher level of cognitive thinking.

Piaget's Stages of Child Development-

Jean Piaget's theory of Cognitive Development are divided into four Major stages are:

A. Sensory Motor Stage: (0—2 Years)

B. Preoperational stage: (2—7 Years)

C. Concrete Operational Stage: (7—11 Years)

D. Formal Operational Stage: (11 Years —Adulthood)

A. The Sensory Motor Stage (Ages: Birth to 2 years)

The main characteristic of this stage of development are:

- It involves the senses and motor activities.

- Children do reflexive activities such as sucking and grasping.
- The child observes and imitates his or her surroundings. Thought and memory also start to develop systematically.
- Children learn to recognize objects and understand that objects have their separate permanent existence

As infants grow older, they learn that even if an object is not in front of them, it still exists. Piaget called it to object permanence. It is also known as 'out of sight, out of mind

Children also learn to work in a particular direction. Catching a particular thing which they are asked to catch, playing with puzzles and so on are common activities they learn to do. They move from simple to complex logical action and thinking. This goal-directed thinking helps them to progress to a higher level scheme to achieve a goal

The Sensory Motor Stage is further divided into six sub-stages

There are six sub-stages of the first stage given by Piaget:

1. **Stages of Reflex Activities (0—1 month**): Inborn reflexes (sucking and looking) help the child to understand the surrounding.
2. **Primary Circular Reactions (1—4 months)**: Sensations and schemas get coordinated in this stage. Whatever children do in this stage, they tend to do it repeatedly as they derive pleasure from doing so. For example, if a child starts sucking thumb, he or she will continue with this action because it gives the child a soothing feeling.
3. **Secondary Circular Reactions (4—8 months**): younger Children become more focused on doing actions. They repeat their actions to get a response from the environment.
4. **Coordination of Reactions (8—12 months):** In this stage, children learn to make a difference between goal and means. They also develop ways to achieve their goals. They also try to generalize the learning and try to use it from one situation to another.

5. **Tertiary Circular Reactions (12—18 months)**: This is a stage of trial and error. Children explore the things around them. They make mistakes and also tend to repeat these mistakes. This stage is very important as children learn to be confident in this particular stage. They repeat many actions because they want attention from their caregiver.
6. **Early Representational Thought (18—24 months**): Children start focusing more on mental activities rather than physical actions and they start thinking about objects. At this age, they show the ability to recognize object permanence. They search for the toy even if it is not in their sight.

B. The Preoperational stage (Ages: 2 to 7 Years)

The Main Characteristics of this stage involves:

- Children begin to process their thoughts at this stage although in a manner that is far less efficient than the logical thought-processing of adults.
- Their vocabulary expands and develops during this time because they change their working style and habits and start behaving like little adults
- This stage is known as a pre-operational stage of cognitive development. It is called 'pre' because, in this stage, children cannot perform a logical operation.
- This stage is categorized in two parts: **pre-conceptual stage (2-4) and intuitive stage (4-7).**
- Their vocabulary expands and develops during this time because they change their working style and habits and start behaving like little adults

Some of the other important characteristics are:

- **Ego-centrism** is one of the main characteristics of pre-operational. Children focus on their perspective and feel that they are correct. They also believe that others also share the same perspective because they think that it is the only perspective which exists. But gradually they understand that

there are many perspectives and Piaget called it 'decentering: They start believing that they are not at the centre of everything.

- **Animism** is also a characteristic of the pre-operational stage. It is a characteristic by which children believe that all objects or things are living and has some consciousness. An example of this is that children often believe that a table also feels pain if it is hit or kicked; a car does not get started because it is tired and so on. A child believes that everyone is like him or her.
- Children also develop **the ability to use symbols, language, pictures, signs or gestures to represent actions or objects mentally**. Piaget called this semiotic function or symbolism. Along with this, their ideas of right and wrong are governed by the people around them.

C. The Concrete Operational Stage (Ages: 7 to 11 years)

The main characteristic of Concrete Operational stage are:

- Children can do operations on concrete objects and situations. However, they will find it hard to solve abstract problems and have difficulty with words like 'assume' that relate to mental conjecture.
- They can do logical thinking if they are allowed to manipulate objects. By comparison, however, it is seen that thoughts can be manipulated and the presence of the object is not necessary for the thought to take place in the formal operations stage.
- They start thinking more like mature persons and rarely believe in animism and ego-centrism.
- Children learn many things in this stage concerning conservation such as classification, grouping objects into categories, arranging of objects in sequential order according to one aspect, such as size, weight or volume

D. The Formal Operational Stage (Ages: 11 years to Adulthood)

The main Characteristics of formal operational stage are:

- This is the final stage of Piaget's cognitive development in this stage
- Children become capable of abstract thinking and can understand the combination and coordination of numbers and variables.
- Developed formal operational thought.
- Children move ahead from concrete objects to abstract concepts
- They develop a logical system of intelligence and try to incorporate all possible solutions while working on a problem.
- They also learn to coordinate between different variables.
- Children in this stage use the formal operations problem-solving strategy in which an individual begins by identifying all the factors that might affect a problem and then deduces systematically. Piaget called it hypothetico-deductive reasoning.
- This stage permits adolescents to reason beyond a world, of concrete reality to a world of possibilities. Sometimes, they just live in a world of imaginations with no concern about the real world.

Piaget believes that children overcome egocentrism, but they still tend to believe that everyone shares similar thoughts, feeling and concerns. They wonder why people do not understand their need and perspective and therefore, they develop adolescent ego-centrism. They feel that everyone notice them, what they do, how they walk, how they talk.

According to Piaget's the basis behavior starts through sensations and this stage is therefore called by him as the sensory-motor stage. He emphasized that the sensory -motor experiences have significant and probably irreversible effects on his later life.

Piaget described that between one and half years to 2 years a toddler starts understanding that objects have substance, occupy space and are permanent. He gradually can find difference between

himself and other people and things in the environment. The cognitive development determines the toddler's ability to think understand and manipulate things in his surroundings.

8.6 SOCIAL DEVELOPMENT IN A TODDLER

Concept of social development:

Man is a social animal we see the truth of this statement since the birth of an infant. The manner in which an adult depends upon others for his various requirements in the same way a child is dependent on others. The social contacts immensely influence the child development. The first social contact of the child is with his family. Therefore, his early habits and attitudes are determined by the members because he shows his family. These habits and attitudes have an important place in his development because he shows his response towards various social stimuli on their basis. The child's behavior is not determined by a single influence of the home and the environment. In fact his behavior is determined by his personality and his personal relations with the entire environment.

One of the significant characteristic that a toddlers develops is social development i.e. acquiring the skill needed to become a member of a group. Toddler starts talking and interacting more with others as they grow older. When young children enjoy their contacts with others, their attitudes towards those people will become favorable in future and if the social contacts with certain people are not enjoyable, then such contacts are not favorable in future.

Social development starts in infancy but it becomes more pronounced from toddlerhood with increasing age the child expands his social interactions to the parents and relatives, friends and peers, teachers and others. The young child wants and needs companions of adults and other children. Social acceptability becomes a very important goal in the child's life.

At the start of toddlerhood period, children show interest in watching other children play but himself play independently. Then comes a period when children gradually start engaging in play activities with other children. This is called associative play. Toddlers learn to socialize mainly by watching

others make social contacts. Toddlers mostly imitates the behaviour and attitudes of parents as they admire them and want to be like them. The urge to establish social contacts and enjoy the associations with others become quite obvious in toddlerhood.

In toddlerhood, the toddlers mostly use toys in one form or another in their play activities and they attribute certain qualities to their toys. Towards the end of toddlerhood they lose interest in playing much with toys. The play interests during toddlerhood are very much influenced by their maturation level. Besides this, their interest are also determined by the socio-economic status of the family. Play activities during toddlerhood develop motor and communication skills in toddlers. They also become more creative. All these qualities and skills help the children to become more social.

The toddlers gradually learn social behaviour. This learning depends upon his social contact with others. His social development proceeds further as and when he comes in contact with others. A definite plan and guidance is necessary for the desired development of the child. Along with his social development, the personality of the child also gets better adjusted. Social development is usually associated with the development of power of self-expression which enables the child to stand on his own legs. Social development of toddlers proceeds in an order. So it is not difficult to predict the nature of social development at a certain age.



CHECK YOUR PROGRESS

Q 5: What do you mean by cognitive development?

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Q 6: Mention one significant characteristic of social development in a toddler.

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.....

8.7 IMPORTANCE OF FAMILY IN SOCIAL DEVELOPMENT OF A TODDLER

Socialization occurs when one learns to become a member of the society by gaining the skills, values, behaviors and habits of the culture that one is living. Toddlers learn by listening and watching what their family members around them do and then imitates those actions to become a member of society.

- The family is the foremost agent of socializing a child. Social maturity of a child is an essential requisite for his harmonious adjustment in the society. Social acceptability is a goal for everyone and this should be recognized and promoted by parents at home.
- The ability to speak a language first starts in the family. The children learns the language of their parents by imitating the sounds and then understanding the meaning of the words. This helps to develop communication skills later.
- It is through the family that children learn about social customs, mores, traditions and norms. The family also exercises social control over the child, this helps to develop the sense of good judgement and social responsibility in children to make them proper citizen.
- The family help the children to imbibe the culture and develop a social identity. The family members provide companionship, love and security to the children and this provides the foundations for personality development. They learn to perform different social functions within the family.
- The family is the first institution that trains the children for the group life. Mutual affection, trust and distribution of responsibility socialize the children and they learn to participate and shoulder responsibility in the society in later life.
- The family performs educational functions also. The first alphabet and numbers are learnt at home. The mother is the first teacher and she teaches the children about discipline, obedience and manners.

8.8 IMPORTANCE OF PEERS IN THE SOCIAL DEVELOPMENT OF A TODDLER

Peer relationships provide a unique context in which children learn a range of critical social emotional skills, relationships provide a unique context in which children learn a range of critical social emotional skills, such as empathy, cooperation and problem solving strategies.

- Peers play an important role in the toddlerhood period. Toddlers begin to socialize among their age groups through play activities. Play activities helps toddlers to build a social connections among their groups through which they establish the feeling of belongingness and mutual trust.
- Peers also play a vital role in their language development. During the toddlerhood period, toddlers are not able to form clear phrases but can communicate with their fellow mates through their mutual understanding which gradually aids them in the formation and development of language.
- Another important role that peer plays in the social development of a toddler is the act of sharing and caring. Act of sharing is essential for emotional development of a toddler and during this period they develop the tendency of sharing and caring only towards their fellow mates after their parents.
- Socialisation process of a toddler starts in the family but they tends to open up more with children of same age group. Toddlers with their peers through play activities and communication develops feelings and emotions like empathy, kindness, sharing, caring, joy, sadness, etc. which helps in proper development of a socialisation process.
- Peer also plays a vital role in bringing out the personality of a toddler when they remain in a social group. Playing with their same age group is a favourite activity in the toddlerhood period which also helps the toddlers to develop the quality of leadership and companionship.
- When toddlers will remain and interact with their peers their curiosity level will increase to know more about their fellow mates and the things

surrounded around them which will help in developing their mental blocks and to understand different people and things in different situations.



8.9 LET US SUM UP

The unit can be summarized as-

- The birth of the individual is a natural event of life. It enables him to come out of the internal environment of the mother's womb and be in communion with the external environment wherein he has to promote his growth. This growth is continued till death and it has to undergo several changes of all types- physical, mental, emotional, social , etc.
- The first stage of an individual's life after birth is infancy. The first year of a child is infancy period and from the first year (12 months) to 2-3 years is the period of toddler. A toddler is a child approximately 12 to 36 months old, though its definitions vary. The toddler years are a time of great cognitive, emotional and social development. The word toddler is derived from "to toddle" which means to walk unsteady like a child of this age.
- Physical development including gross and fine-motor skills, consumes the interest of toddlers as they practice learned skills and look to develop new ones. Healthy physical development is dependent upon nutrition, brain development, the central nervous system, muscles, bones and the interactions and experiences that are offered to toddlers.
- The physical development of a Toddler is very rapid and can be easily studied under the following heads-
- Language plays a vital role in the personality and social development of the child. The development of language is connected with the physical and mental development of a person.
- One is able to use language only after attaining a definite physical and mental maturation. So long as his vocal organs do not mature

properly, he cannot pronounce words correctly and clearly.

- Communication can be in any form of language- written, spoken, gestures, postures, musical, artistic expression but the most common is the spoken form. The foundation of speaking is laid in infancy itself though the ability to understand clearly happens generally in toddlerhood. Babbling which occurs after few months is most important because speech develop from it eventually.
- Cognitive development refers to the development of the capabilities of knowing, thinking, reasoning, understanding, remembering, etc. Cognitive units include images, symbols, concepts, etc.
- Jean Piaget's is a Swiss-born psychologist who was the first to make systematic study of the acquisition of understanding how thinking in a child develops. According to him intellectual traits characteristic thoughts –"relation and "animism".
- Jean Piaget's theory of Cognitive Development are divided into four Major stages are: Sensory Motor Stage: (0—2 Years),Preoperational stage: (2—7 Years),Concrete Operational Stage: (7—11 Years),Formal Operational Stage: (11 Years —Adulthood)
- Social development starts in infancy but it becomes more pronounced from toddlerhood with increasing age the child expands his social interactions to the parents and relatives, friends and peers, teachers and others. The young child wants and needs companions of adults and other children. Social acceptability becomes a very important goal in the child's life.
- Socialization occurs when one learns to become a member of the society by gaining the skills, values, behaviors and habits of the culture that one is living. Toddlers learn by listening and watching what their family members around them do and then imitates those actions to become a member of society.



8.10 FURTHER READING

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7) Educerecentre.com
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9) https://www.verywellfamily.com
10) https://www.cdc.gov/ncbddd/childdevelopment/positiveparenting/toddlers2.html



8.11 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: The first year of a child is infancy period and from the first year (12 months) to 2-3 years is the period of toddler. A toddler is a child approximately 12 to 36 months old, though its definitions vary.

Ans to Q No 2: The word toddler is derived from the words “to toddle” which means to walk unsteady like a child of this age.

Ans to Q No 3: Height and weight, Nervous proportion, Bones development, Muscles and fat, Sense organ development.

Ans to Q No 4: One important aspect of language development in a toddler

is - Pronunciation: The toddlers learns to pronounce words clearly by end of second year by imitating parents and others adults. This is the second stage of language development. About the age of 18 to 24 months toddlers produce real words and partly trial and error sentences. While they are only capable of producing few short sentences at this time, it should be realized that they are able to understand more. Toddlers begin to understand language about twice as fast as they are able to produce it.

Ans to Q No 5: Cognitive development refers to the development of the capabilities of knowing, thinking, reasoning, understanding, remembering, etc. Cognitive units include images, symbols, concepts, etc.

Ans to Q No 6: One of the significant characteristic that a toddlers develops in social development is to acquire the skill needed to become a member of a group. Toddler starts talking and interacting more with others as they grow older. When young children enjoy their contacts with others, their attitudes towards those people will become favorable in future and if the social contacts with certain people are not enjoyable, then such contacts are not favorable in future.



8.12 POSSIBLE QUESTIONS

A. Short Questions (Answer each questions in about 150 words)

Q 1: Define Development.

Q 2: What is the approximate age of a toddler?

Q 3: What does the word 'Toddle' mean?

Q 4: Mention the physical developmental aspects in a toddler.

Q 5: Language development of a toddler is associated with the development of which aspect?

Q 6: Mention the important aspects of language development of a toddler.

Q 7: What do you mean by Cognitive development?

Q 8: What is Social development?

B. Long Questions (Answer each questions in about 300-500 words)

Q 1: Explain the concept of Physical development of a toddler.

Q 2: Discuss the Physical changes in a toddler.

Q 3: How does language formation takes place in a toddler. Explain.

Q 4: What do you mean by Cognitive development? Explain the units of cognitive development.

Q 5: Explain Jean Piaget's Theory of Cognitive Development.

Q 6: What do you mean by Social development? Explain the importance of social development during toddlerhood.

Q 7: Discuss in detail the importance of Family in social development of a toddler.

Q 8: Discuss the importance of Peers in social development of a toddler.

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