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Directorate of Distance Education

B.Sc. [Psychology]

I - Semester

119 14

HUMAN DEVELOPMENT

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SYLLABI-BOOK MAPPING TABLE

Human Development

Syllabi	Mapping in Book
BLOCK I: ASPECTS OF HUMAN DEVELOPMENT	
UNIT - 1: Introduction - Introduction - Concept of Human Development - Basic Concepts: Growth, Development, Stages Life Span Development and their Characteristics	Unit 1: Introduction to Human Development (Pages 1-15);
UNIT - 2: Maturation Aspects of Development - Maturation Aspects of Development, Significant Facts, Physical, Social Cognitive Moral Principles of Human Development	Unit 2: Maturation Aspects of Development (Pages 16-24);
UNIT - 3: Factors Influencing Human - Ecological Factors, Heredity Factors Chromosomal Abnormalities	Unit 3: Factors Influencing Human Beings (Pages 25-34);
UNIT - 4: Parental Development and Infancy - Stages of Parental Development - Teratogens and Parental Involvement New Born Appearance Reflexes Assessment and States of Infancy	Unit 4: Prenatal Development and Infancy (Pages 35-50)
BLOCK II: APPROACHES IN HUMAN DEVELOPMENT	
UNIT - 5: Physical and Motor Development - Cognitive and Language Development, Psychological Development - Emotions, Attachment and Temperament	Unit 5: Physical and Motor Development (Pages 51-76);
UNIT - 6: Physical Development - Patterns of Physical Growth - The Reflexes - Structural and Systematic Changes - Growth Rate - Aging Process - Health Factors	Unit 6: Physical Development (Pages 77-88);
UNIT - 7: Childhood - Early and Middle Childhood Physical and Motor Development, Cognitive Development Language Development, Emotions, Play, Aggression and Altruism	Unit 7: Childhood (Pages 89-104);
UNIT - 8: Intellectual Development - Approaches: Psychometric, Piagetian and Information Processing. Moral Development: Kohlberg's Levels of Morality, Language Development and Acquisition of Language	Unit 8: Intellectual Development (Pages 105-126)
BLOCK III: EMOTIONAL AND DEVELOPMENT	
UNIT - 9: Emotional - Emotions - The Emerging Sense of Self - Emotions throughout Life Span Development - Temperament Self Concept - Socialization	Unit 9: Emotional Development (Pages 127-141);
UNIT - 10: Self Development - Identity Crisis in Adolescence - Relationship with Parents, Peers, Life Partner and aging Parents	Unit 10: Self-Development (Pages 142-151);
UNIT - 11: Puberty and Adolescents - Meaning Biological Changes, Sexual Maturation Growth Spurt, Primary and Secondary Sexual Characteristics, Responses to Physical Changes, Development of Identity, Erikson and Marcia's Vies, Adolescents Relationship Family, Peers Adult Society	Unit 11: Puberty and Adolescents (Pages 152-163)
BLOCK IV: STAGES OF ADULTHOOD	
UNIT - 12: Early Adulthood - Early Adulthood - Vocational Adjustment Foundation of Intimate Relationship and Sexuality Marriage : Marital Adjustment and Conditions Influencing it Parenthood Adjustment to Parenthood	Unit 12: Early Adulthood (Pages 164-173);
UNIT - 13: Middle Adulthood - Psychical Development - Occupational Adjustment Stable and Unstable Patterns, Preparation for Retirement Psychological Changes, Coping with Mid Life Crisis, Changes in Relationships Marriage Relationship with Maturing Children ageing Parents Siblings, Grandparenthood, Friendship	Unit 13: Middle Adulthood (Pages 174-183);
UNIT - 14: Late Adulthood - Primary and Secondary Ageing, Theories of Ageing Psychological Aspects Models of Coping, Models of Successful Ageing, Lifestyle and Social Issues, Work Retirement and Leisure. Personal Relationship with Adult Children, Siblings, Great - Grandparenthood Stages and Patterns of Grieving	Unit 14: Late Adulthood (Pages 184-200)

CONTENTS

INTRODUCTION

BLOCK I: ASPECTS OF HUMAN DEVELOPMENT

UNIT 1 INTRODUCTION TO HUMAN DEVELOPMENT 1-15

- 1.0 Introduction
- 1.1 Objectives
- 1.2 Concept of Human Development
- 1.3 Basic Concepts of Developmental Psychology
 - 1.3.1 Significant Facts about Development
- 1.4 Growth and Development
- 1.5 Lifespan Development and Characteristics
 - 1.5.1 Characterising Lifespan Development
- 1.6 Answers to Check Your Progress Questions
- 1.7 Summary
- 1.8 Key Words
- 1.9 Self Assessment Questions and Exercises
- 1.10 Further Readings

UNIT 2 MATURATION ASPECTS OF DEVELOPMENT 16-24

- 2.0 Introduction
- 2.1 Objectives
- 2.2 Maturation Aspects of Development: Significant Facts
 - 2.2.1 Definitions of Maturation
- 2.3 Physical, Social and Cognitive Development
 - 2.3.1 Physical Development
 - 2.3.2 Social Development
 - 2.3.3 Cognitive Development
 - 2.3.4 Moral Principles of Human Development
- 2.4 Answers to Check Your Progress Questions
- 2.5 Summary
- 2.6 Key Words
- 2.7 Self Assessment Questions and Exercises
- 2.8 Further Readings

UNIT 3 FACTORS INFLUENCING HUMAN BEINGS 25-34

- 3.0 Introduction
- 3.1 Objectives
- 3.2 Ecological Factors
- 3.3 Heredity Factors
 - 3.3.1 Determination of the Sex of the Child
 - 3.3.2 Chromosomal Abnormalities
- 3.4 Answers to Check Your Progress Questions
- 3.5 Summary
- 3.6 Key Words
- 3.7 Self Assessment Questions and Exercises
- 3.8 Further Readings

UNIT 4 PRENATAL DEVELOPMENT AND INFANCY **35-50**

- 4.0 Introduction
- 4.1 Objectives
- 4.2 Stages of Prenatal Development
 - 4.2.1 Teratogens
 - 4.2.2 The Process of Birth: New Born Appearance
 - 4.2.3 Postnatal Development
- 4.3 Consciousness States of Infancy
- 4.4 Answers to Check Your Progress Questions
- 4.5 Summary
- 4.6 Key Words
- 4.7 Self Assessment Questions and Exercises
- 4.8 Further Readings

BLOCK II: APPROACHES IN HUMAN DEVELOPMENT

UNIT 5 PHYSICAL AND MOTOR DEVELOPMENT **51-76**

- 5.0 Introduction
- 5.1 Objectives
- 5.2 Cognitive and Language Development
 - 5.2.1 Mental or Intellectual Development
 - 5.2.2 Theories of Cognitive Development
 - 5.2.3 Language Acquisition
- 5.3 Psychological Development: Emotions, Attachment and Temperament
- 5.4 Answers to Check Your Progress Questions
- 5.5 Summary
- 5.6 Key Words
- 5.7 Self Assessment Questions and Exercises
- 5.8 Further Readings

UNIT 6 PHYSICAL DEVELOPMENT **77-88**

- 6.0 Introduction
- 6.1 Objectives
- 6.2 Patterns of Physical Growth
 - 6.2.1 The Reflexes
- 6.3 Structural and Systematic Changes: Growth Rate, Ageing Process and Health Factors
- 6.4 Answers to Check Your Progress Questions
- 6.5 Summary
- 6.6 Key Words
- 6.7 Self Assessment Questions and Exercises
- 6.8 Further Readings

UNIT 7 CHILDHOOD **89-104**

- 7.0 Introduction
- 7.1 Objectives
- 7.2 Physical, Emotional, Cognitive, Social and Moral Development of Children
- 7.3 Aggression and Altruism
- 7.4 Answers to Check Your Progress Questions
- 7.5 Summary
- 7.6 Key Words

- 7.7 Self Assessment Questions and Exercises
- 7.8 Further Readings

UNIT 8 INTELLECTUAL DEVELOPMENT 105-126

- 8.0 Introduction
- 8.1 Objectives
- 8.2 Psychometric Approach to Intellectual Development
- 8.3 Piaget and the Information Processing Approach
- 8.4 Moral Development
 - 8.4.1 Kohlberg's Levels of Morality
- 8.5 Language Development
 - 8.5.1 Acquisition of Language
- 8.6 Answers to Check Your Progress Questions
- 8.7 Summary
- 8.8 Key Words
- 8.9 Self Assessment Questions and Exercises
- 8.10 Further Readings

BLOCK III: EMOTIONAL AND DEVELOPMENT

UNIT 9 EMOTIONAL DEVELOPMENT 127-141

- 9.0 Introduction
- 9.1 Objectives
- 9.2 Emotions
- 9.3 Emerging Sense of Self
 - 9.3.1 The Self-Concept
- 9.4 Emotions and Temperament Throughout Lifespan Development
- 9.5 Socialisation
- 9.6 Answers to Check Your Progress Questions
- 9.7 Summary
- 9.8 Key Words
- 9.9 Self Assessment Questions and Exercises
- 9.10 Further Readings

UNIT 10 SELF-DEVELOPMENT 142-151

- 10.0 Introduction
- 10.1 Objectives
- 10.2 Identity Crisis in Adolescence
 - 10.2.1 Relationship with Parents
 - 10.2.2 Relationship with Peers
 - 10.2.3 Relationship with Life Partner
 - 10.2.4 Relationship with Aging Parents
- 10.3 Answers to Check Your Progress Questions
- 10.4 Summary
- 10.5 Key Words
- 10.6 Self Assessment Questions and Exercises
- 10.7 Further Readings

UNIT 11 PUBERTY AND ADOLESCENTS 152-163

- 11.0 Introduction
- 11.1 Objectives

- 11.2 Biological and Mental Changes
- 11.3 Erikson's Views
 - 11.3.1 James Marcia's Views
- 11.4 Adolescents Relationship with Family, Peers and Adult Society
- 11.5 Answers to Check Your Progress Questions
- 11.6 Summary
- 11.7 Key Words
- 11.8 Self Assessment Questions and Exercises
- 11.9 Further Readings

BLOCK IV: STAGES OF ADULTHOOD

UNIT 12 EARLY ADULTHOOD

164-173

- 12.0 Introduction
- 12.1 Objectives
- 12.2 Early Adulthood: An Overview
 - 12.2.1 Foundation of Intimate Relationship and Sexuality
- 12.3 Marriage and Marital Adjustment
 - 12.3.1
- 12.4 Answers to Check Your Progress Questions
- 12.5 Summary
- 12.6 Key Words
- 12.7 Self Assessment Questions and Exercises
- 12.8 Further Readings

UNIT 13 MIDDLE ADULTHOOD

174-183

- 13.0 Introduction
- 13.1 Objectives
- 13.2 Overview of Middle Adulthood
- 13.3 Relationship with Maturing Children and Ageing Parents
- 13.4 Answers to Check Your Progress Questions
- 13.5 Summary
- 13.6 Key Words
- 13.7 Self Assessment Questions and Exercises
- 13.8 Further Readings

UNIT 14 LATE ADULTHOOD

184-200

- 14.0 Introduction
- 14.1 Objectives
- 14.2 Late Adulthood: An Overview
- 14.3 Old Age
- 14.4 Theories of Aging
 - 14.4.1 Models of Successful Aging
- 14.5 Patterns or Stages of Grief
- 14.6 Personal Relationships with Adult Children
- 14.7 Answers to Check Your Progress Questions
- 14.8 Summary
- 14.9 Key Words
- 14.10 Self Assessment Questions and Exercises
- 14.11 Further Readings

INTRODUCTION

NOTES

Human development is about expanding the richness of human life, rather than simply the richness of the economy in which human beings live. It is an approach that is focused on people and their opportunities and choices.

It focuses on improving the lives people lead rather than assuming that economic growth will lead, automatically, to greater wellbeing for all. Income growth is seen as a means to development, rather than an end in itself. It is about giving people more freedom to live lives they value. In effect this means developing people's abilities and giving them a chance to use them. For example, educating a girl would build her skills, but it is of little use if she is denied access to jobs, or does not have the right skills for the local labour market. Three foundations for human development are to live a long, healthy and creative life, to be knowledgeable, and to have access to resources needed for a decent standard of living.

The book, *Human Development* is divided into fourteen units. It follows the SIM format or the self-instructional mode wherein each Unit begins with an Introduction to the topic followed by an outline of the Objectives. The detailed content is then presented in a simple and organized manner, interspersed with Check Your Progress questions to test the understanding of the students. A Summary along with a list of Key Terms and a set of Self-Assessment Questions and Exercises is also provided at the end of each unit for effective recapitulation.

BLOCK - I
ASPECTS OF HUMAN DEVELOPMENT

*Introduction to
Human Development*

**UNIT 1 INTRODUCTION TO
HUMAN DEVELOPMENT**

NOTES

Structure

- 1.0 Introduction
- 1.1 Objectives
- 1.2 Concept of Human Development
- 1.3 Basic Concepts of Developmental Psychology
 - 1.3.1 Significant Facts about Development
- 1.4 Growth and Development
- 1.5 Lifespan Development and Characteristics
 - 1.5.1 Characterising Lifespan Development
- 1.6 Answers to Check Your Progress Questions
- 1.7 Summary
- 1.8 Key Words
- 1.9 Self Assessment Questions and Exercises
- 1.10 Further Readings

1.0 INTRODUCTION

Human development, as the name clearly suggests is all about the development of the human being, biologically and psychologically during his entire life cycle—from the infant stage, to childhood, adolescence and right up to adulthood. When this development of the human being through the various stages is studied in a scientific manner, it is called developmental psychology.

In this unit, you will be introduced to the study of human development and the basic concepts associated with this field. You will be familiarised with the difference between growth and development and the factors that influence the same through the various stages of a human being's life.

1.1 OBJECTIVES

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

- Define developmental psychology
- Explain the concepts associated with developmental psychology
- List the features related to development and its significance

- Discuss development as attaining of maturity, learning and synthesis
- Recognise the characteristics of development in the various stages of life

NOTES

1.2 CONCEPT OF HUMAN DEVELOPMENT

Developmental psychology is a scientific study, which analyses the ways in which human beings stay the same or change from conception to death. Also known as human development, the study originally dealt with infants and children. However, now the study has evolved with a focus on adolescence, ageing and the entire span of life. Besides, the study also analyses many other changes, such as:

- Physical and other psycho-physiological processes
- Problem-solving abilities
- Conceptual understanding
- Acquisition of language
- Moral understanding
- Identity formation

In this field, developmental psychologists explore issues like how children differ from adults. The difference between them on qualitative basis, or on the basis of the experience adults have. They also deal with several other significant issues, such as:

- (i) Whether development takes place through knowledge accumulation on a gradual basis or due to shifting from one stage of thought process to another
- (ii) Whether children are born with hereditary knowledge or gain knowledge through experience
- (iii) Whether social environment helps in the development of a child or other factors inside a child lead to his development

Therefore, development psychology is also related to other applied fields, which include child psychopathology, educational psychology, forensic developmental psychology, cognitive psychology, comparative psychology and social psychology.

1.3 BASIC CONCEPTS OF DEVELOPMENTAL PSYCHOLOGY

In this section, we will discuss the basic concepts of developmental psychology, which elucidate the changes brought about by human development. Your personal experience is a significant example of human development as you can see the changes in yourself from being born as a baby to being what you are today. Change in human beings is inevitable from conception to death. Although this change takes

place throughout life, it is most distinct during childhood. Developmental change is organised, comprehensible and adaptive as it deals with the continuously changing conditions of existence.

Nature/Nurture Issues

Scholars have viewed the influence of heredity and environment on the development of an individual differently. There are extreme views also. However, the fact remains that the impact of heredity and environment is similar to that of two eyes, two hands, two feet, two legs, etc. on the development of a person. Each one is complementary and supplementary to the other. Sometimes one plays a more dominant role and the other a relatively less dominant role. For the balanced and harmonious development of an individual, a balanced and harmonious interaction between heredity and environment is very essential. Of course, each has its limitations. Each can influence the development of the individual to a limit. The role of the home and the school is to ensure that optimum use is made of these limits.

Meaning of Heredity

In the words of Woodworth (1945), ‘Heredity covers all the factors that are present in the individual when he begins life not at birth, but at the time of conception about nine months before birth’.

Douglas and Holland (1947) define heredity as, ‘One’s heredity consists of all the structures, physical characteristics, functions or capacities derived from parents, other ancestry or species’.

Every child comes into this world with certain physical and mental characteristics that he inherits from his parents and ancestors. He is born with a body and mind, which developed from the fertilised ovum. His limbs and organs grow from the same. Some of his mental tendencies are also based on the same. This is all on account of heredity. It is seen that a cat gives birth to a kitten, a dog to a puppy and a human being to a human being, and it is because of this factor that we say that the class of dogs will give birth to puppies or that like begets like. Still, we find a lot of variation among cats or dogs or human beings even if they are born of the same parents. We shall study why this phenomenon occurs.

Meaning of Environment

Environment consists of multiple factors. It includes the social dimension, i.e., family, peers, school, teachers, level of education, neighborhood, and exposure to different cultures. There is also the emotional aspect, which includes love, care, affection, and support from the people around. The last aspect of environment is the financial resources, such as the accessibility to latest technology among others.

There are various studies which have propounded the importance of nature over nurture and vice-versa. However, the latest perspective considers the complementary and supplementary effect of each — nature as well as nurture, on an individual.

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Studies conducted on twins

Several psychologists have conducted studies on twins, which throw light on the influence of heredity and environment. A few of them are given in brief in the following paragraphs:

1. *Correlation Method Study*: Wingfield's (1928) study found the following correlation:

Table 1.1 Coefficient of Correlation Indicating Family Resemblances in Intelligence Scores

Family Relationship	Correlation Coefficient
Identical twins	0.90
Fraternal twins (both sexes)	0.70
Fraternal twins (unlike sex)	0.59
Siblings	0.50
Parent and Child	0.27
Cousins	0.16
Unrelated Children	0.00

The Table 1.1 shows that the coefficients fall into hierarchy according to the degree of blood relationship. Thus, the highest correlation is obtained for identical twins, who have identical heredity. In case of fraternal twins, the correlation drops to 0.70 and for unlike sex 0.59 and for children of the same parents 0.50. This is because brothers and sisters differ in their genes though they are more similar in this respect than parent and child or cousins. However, it must be accepted that these children also differ in intelligence because of differences in home environments.

2. *Freeman's Studies*: Freeman (1928) found the following coefficient of correlation of the intelligence test score:

Table 1.2 Freeman's Coefficient of Correlation

Identical twins	0.90
Fraternal twins	0.60
Siblings	0.50
Cousins	0.25

3. *Heredity Constant and environment varied*: Newman (1937) and others conducted a study and published their findings in a book entitled *Twins: A Study of Heredity and Environment*. 50 identical twins were reared together and 19 were reared separately. The comparison of these two groups is given in Table 1.3:

Table 1.3 Heredity and Environment

Average Difference			
S.No	Aspect	Reared Together	Reared Apart
1.	Height	.63 4.0	.70 9.0
2.	Weight	pound 5.4	pound 8.2
3.	Intelligence		

In the case of the nineteen pairs of identical twins reared separately, it was found that the mean IQ difference between them was 8.2 points.

The data obtained with the identical pairs who were reared together showed the mean difference in IQ to be 5.4 and correlation .88.

1.3.1 Significant Facts about Development

Let us look at the various facts or features related to development.

1. Development leads to change
 - Growth refers to quantitative changes – increase in size as well as structure
 - Development, by contrast, refers to qualitative changes. It is a progressive series of orderly, coherent changes. Progressive means that changes are directional, which lead forward rather than backward.
 - Goals of developmental changes: self-realisation or achievement of genetic potential.
 - Types of changes in development:
 - o A human being is never static and is always undergoing changes.
 - o Changes are antagonistic: On one hand, there is positive growth, such as gaining maturity with experiences and on the other, there is atrophy and decay of the human body as it grows older.
 - o Changes are interrelated: Changes never occur in isolation. They are in the form of size, altered proportions, and disappearance of old and acquisition of new features.
2. Early development is critically important more than later development
 - As per Freud, maladjustments lead to unfavourable child experiences. The more recent studies carried out on this aspect substantiate this theory.
 - As per Erickson, babyhood is a time to ‘build trust or distrust’ – here, the individual learns to view the world as safe, reliable and nurturing or threatening and unpredictable.
 - Conditions affecting early childhood foundations: Favorable interpersonal relations, emotional states, child-training methods, early role play, childhood family structure, and environmental stimulation.
 - Early foundations: Early learning and experience play a big part and the family should take part in the learning. Early foundations quickly develop into habitual patterns and will have a lifelong influence. Contrary to popular belief, children do not outgrow undesirable traits as they grow older. Therefore, it is recommended to ensure that early learning is geared towards developing desired traits.
3. Maturation and learning both result in development
 - Meaning of maturation: It is the unfolding of characteristics potentially present in the individual that come from the individual’s genetic endowment.

NOTES

NOTES

- Phylogenetic functions – common to race
- Ontogenetic functions – common to individual
- Meaning of learning – Development that comes from exercise and effort
- Importance of readiness to learn – interest in learning and sustained interest will gradually lead to improvement.
- Effects of maturation and learning interrelationships: Variations in pattern of development, maturation sets limits to development, maturational limits are rarely reached, deprivation of learning opportunities limits development, Stimulation is essential for full development, and effectiveness of learning depends on proper timing.

4. Developmental patterns

- Developmental pattern can be interfered with, temporarily or permanently, by environmental or physical conditions, which may speed or delay development.
- Environmental conditions (temporary): malnutrition, illness, season of the year, and severe emotional stress are some temporary conditions that may hamper development. Period of ‘catch up’ growth begins after conditions are removed or ameliorated.
- Environmental conditions (permanent): Some environmental conditions such as deficiency of thyroid activity during pre-natal period or calcium deficiency may affect development permanently.
- Psychological conditions: Emotional deprivation due to parental rejection, loss of a parent, or institutionalisation are some factors that hamper development.
- Cultural values may also impact development

5. Predictability of developmental characteristics

- There is considerable similarity in developmental patterns across the human race.
- Development proceeds from general or random to specific responses.
- Development is continuous from conception to death.
- Different areas develop at different rates. For example, physical development – hands, nose, feet grow rapidly in teenage years as compared to the lower part of face and shoulders. As for intellectual development in childhood, creativity and rote memory for concrete concepts, and abstract ideas grow more rapidly than reasoning development which is much slower.
- There is a correlation in development as per Terman and Oden (1947), that desirable traits go together.

6. Development varies from one individual to another

There are environmental and genetic influences which affect development and their understanding and awareness can help in the following ways:

- Set different expectations: All children cannot be expected to excel at studies or sports. Each child has different growth patterns and learning abilities. Acknowledging these differences will help set the right expectations for children, teachers, as well as parents.
- Child rearing can become individualised: Some children need more supervision and affection than others. Still others are more sensitive and prone to depression. Parenting styles must be tailored according to the child's temperament and needs and this will help to optimise development.

7. Social factors influence every developmental phase

The society expects each individual to perform according to the precise timetable of development. Social expectations are known as 'developmental tasks'. In a society that is static vis-à-vis its contemporaries, developmental tasks remain much the same over generations. Purpose of developmental tasks is to act as guidelines and motivating forces for children, and to set expectations. Some factors that influence mastery of developmental tasks are:

- Importance of mastering developmental tasks: Failure of it leads to a feeling of inferiority, social disapproval and social rejection.
- Success in these tasks leads to happiness, acceptance, affection and achievement.

NOTES

Check Your Progress

1. What does the study of developmental psychology analyse?
2. Name two fields that development psychology can be applied to.
3. What are the influences on an individual's development?
4. How do different areas develop at different rates?
5. Why are early learning and early foundations important?

1.4 GROWTH AND DEVELOPMENT

Why should a teacher study growth and development? The answer to this question is that a teacher has to deal with children of different socio-economic and cultural backgrounds who have a wide variety of individual differences among themselves at different age levels. The teacher as an agent of the society is responsible to bring desirable changes in the behaviour of children so that they may shoulder the responsibilities of a good citizen to accelerate the process of national development.

NOTES

The other reason to study development is its continuity from the past to the present, and present can be understood in terms of its past history.

Prior to joining school, a child accumulates enormous experiences in his home and neighbourhood environment which are very useful to start formal education in an effective way. Individual differences among children play an important role in education. The teacher must know the potentialities and capacities of each and every child of his class so that he may exploit them to the maximum for the benefit of the individual and the society. The teacher must know the basic principles of growth and development and the characteristics which emerge at different age-levels in various developmental dimensions to provide effective guidance for the harmonious development of children.

Growth and development have been interchangeably used by most of the developmental psychologists because both the processes are interrelated and interdependent on each other. It is difficult to differentiate the contribution of either of them in the development of the personality of an individual. However, some psychologists define growth as an indicative of increase in bodily dimensions: height and weight and it is generally confined to quantitative changes.

Arnold Gessell, an American child psychologist, wrote, “. . . Growth is a function of the organism rather than of the environment as such: The environment furnishes the foil and the milieu for the manifestations of development, but these manifestations come from inner compulsion and are primarily organised by inherent inner mechanics and by an intrinsic physiology of development. The very plasticity of growth requires that there be limiting and regulatory mechanisms. Growth is a process so intricate and so sensitive that there must be powerful stabilising factors, intrinsic rather than extrinsic, which preserve the balance of the total pattern and direction of the growth trend. Maturation is, in a sense, a name for this regulatory mechanism.”

Development can be defined as the emerging and expanding of capacities of the individual to provide greater facility in functioning such as development of motor ability from uncertain steps to proficiency in games. Development as a matter of fact, is achieved through growth.

Development refers to interactions of a person and his environmental surroundings whose after-products alter existing response tendencies in such a way as to increase:

- (i) their strength;
- (ii) the degree of differentiation; and
- (iii) the organisation of personality.

Development refers to those effects upon the person’s cognitive-emotional systems which strengthen or enlarge one or more of them; increase their number

or interrelate them in some different way. In brief, development is confined to qualitative changes in the organism.

The process of development has been explained from different point of views. Some of them are given below:

Development as Maturation

According to the famous child psychologist, Arnold Gessell, the role of physical changes is important in development. The development from infancy to adolescence is governed by physical changes that are mapped out in the individual's genes. For instance, a growing nervous system changes systematically and automatically and this results in predictable changes in bones and muscles. He used the word maturation to describe growth processes that are governed by such automatic, genetically determined signals. He believed that most major changes in the organism are based on maturation. According to him there is internal programming toward physical and cognitive growth and each year is characterised by certain behavioural changes. He developed a detailed chart of the sequentiality in child development on the basis of his observation of children for many years.

Development as Learning

Psychologist, Donald M. Baer has defined development as "behaviour change which requires programming; and programming requires time, but not enough of it to call it age." Programming refers here to sequences of learning which may happen naturally or may be arranged in the life of an individual. Development, in this view, is a collection of learning experiences which the child acquires in the process of interaction with his environment.

Development as Synthesis

Some psychologists reject the maturation and learning views of development. Both approaches treat the development as a passive process. The individual is a passive recipient. Piaget says, "For some psychologists development is reduced to a series of specific learned items and development is thus the sum . . . of this series of specific items . . . In reality development is the essential process, and each element of learning occurs as a function of total development rather than being an element which explains development." According to Piaget, there are four basic elements in development which are as follows:

- Maturation,
- Experience,
- Social transmission (learning through language, schooling or training by parents), and
- Equilibration.

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1.5 LIFESPAN DEVELOPMENT AND CHARACTERISTICS

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From the moment we are first conceived, to the day we die, we are constantly changing and developing. While some of the changes we undergo are as a result of chance incidents and personal choices, the vast majority of life changes and stages we pass through are due to our common biological and psychological heritage as human beings and are shared by all people.

Study of Lifespan Development is providing with an overview of the important common developmental stages that human beings pass through: birth, infancy, adolescence, adulthood, old age and finally death. Along the way we learn how to use our bodies, to communicate, to form relationships, to work and to love. Knowledge about how human lifespan development is supposed to unfold is important because it serves as the base upon which our life problems sit. If we are not properly nurtured as an infant, we may have difficulty trusting in relationships at all as an adult. Knowing something about how people typically develop themselves over time thus helps us to place our problems and illnesses into context, and also suggests ways that our problems can be fixed.

How people grow and change over the course of their lives is the focus of lifespan development.

Lifespan development is the field of study that examines patterns of growth, change, and stability in behavior that occur throughout the entire life span. Lifespan development focuses on human development. Although there are developmentalists who study the course of development in nonhuman species, the vast majority examines growth and change in people. Some seek to understand universal principles of development, whereas others focus on how cultural, racial, and ethnic differences affect the course of development. Still others aim to understand the unique aspects of individuals, looking at the traits and characteristics that differentiate one person from another. Regardless of approach, however, all developmentalists view development as a continuing process throughout the life span. As developmental specialists focus on the ways people change and grow during their lives, they also consider stability in people's lives. They ask in which areas, and in what periods, people show change and growth, and when and how their behavior reveals consistency and continuity with prior behavior.

Finally, developmentalists assume that the process of development persists throughout every part of people's lives, beginning with the moment of conception and continuing until death. Developmental specialists assume that in some ways people continue to grow and change right up to the end of their lives, while in other respects their behavior remains stable. At the same time developmentalists believe that no particular, single period of life governs all development. Instead, they believe that every period of life contains the potential for both growth and decline in abilities,

and that individuals maintain the capacity for substantial growth and change throughout their lives.

1.5.1 Characterising Lifespan Development

The definition of lifespan development is broad and the scope of the field is extensive. Consequently, lifespan development specialists cover several quite diverse areas, and a typical developmentalist will choose to specialise in both a topical area and an age range.

Physical development: Some developmentalists focus on physical development, examining the ways in which the body's makeup—the brain, nervous system, muscles, and senses, and the need for food, drink, and sleep—helps determine behaviour. For example, one specialist in physical development might examine the effects of malnutrition on the pace of growth in children, while another might look at how athletes' physical performance declines during adulthood (Fell & Williams, 2008).

Cognitive development: Other developmental specialists examine cognitive development, seeking to understand how growth and change in intellectual capabilities influence a person's behaviour. Cognitive developmentalists examine learning, memory, problem-solving skills, and intelligence. For example, specialists in cognitive development might want to see how problem-solving skills change over the course of life, or whether cultural differences exist in the way people explain their academic successes and failures. They would also be interested in how a person who experiences significant or traumatic events early in life (Alibali, Phillips, & Fischer, 2009; Dumka et al., 2009).

Personality and Social development: Finally, some developmental specialists focus on personality and social development. Personality development is the study of stability and change in the enduring characteristics that differentiate one person from another over the life span. Social development is the way in which individuals' interactions with others and their social relationships grow, change, and remain stable over the course of life. A developmentalist interested in personality development might ask whether there are stable, enduring personality traits throughout the life span, whereas a specialist in social development might examine the effects of racism or poverty or divorce on development (Evans, Boxhill, & Pinkava, 2008; Lansford, 2009)

These four major topic areas—physical, cognitive, social, and personality development—are summarised in Table 1.4.

Table 1.4 Approaches to Lifespan Development

S.No.	Orientation	Defining Characteristics
1.	Physical development	Emphasises how brain, nervous system, muscles, sensory capabilities, needs for food, drink, and sleep affect behavior.
2.	Cognitive development	Emphasises intellectual abilities, including learning, memory, problem solving, and intelligence.

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3. Personality and social development Emphasises during characteristics that differentiate one person from another, and how interactions with others and social relationships grow and change over the lifetime.

Each of the broad topical areas of lifespan development—physical, cognitive, social, and personality development- plays a role throughout the life span. Consequently, some developmental experts focus on physical development during the prenatal period, and others during adolescence. Some might specialise in social development during the preschool years, while others look at social relationships in late adulthood. And still others might take a broader approach, looking at cognitive development through every period of life.

Check Your Progress

6. What is the difference between growth and development?
7. Define development.
8. What is lifespan development the study of?
9. List the topics covered under lifespan development.

1.6 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. The study of developmental psychology not only studies human beings through their various stages of development, but also the physical and other psycho-physiological processes, the changes in their problem solving abilities, their conceptual understanding, language acquisition skills, moral understanding and identity formation.
2. Developmental psychology can be applied to psychopathology and educational psychology too.
3. Heredity and environment influence an individual's development in different ways.
4. Physical development – hands, nose, feet grow rapidly in teenage years as compared to the lower part of face and shoulders. As for intellectual development in childhood, creativity and rote memory for concrete concepts, and abstract ideas grow more rapidly than reasoning development which is much slower.
5. Early learning and experience play a big part and the family should take part in the learning. Early foundations quickly develop into habitual patterns and will have a lifelong influence. Contrary to popular belief, children do not outgrow undesirable traits as they grow older. Therefore, it is

recommended to ensure that early learning is geared towards developing desired traits.

6. Growth refers to quantitative changes, such as size and height, whereas development refers to qualitative changes.
7. Development can be defined as the emerging and expanding of capacities of the individual to provide greater facility in functioning such as development of motor ability from uncertain steps to proficiency in games. Development as a matter of fact, is achieved through growth.
8. Lifespan development is the field of study that examines patterns of growth, change, and stability in behavior that occur throughout the entire life span. Lifespan development focuses on human development.
9. The broad topics studied under lifespan development are physical, cognitive, social, and personality development.

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1.7 SUMMARY

- Human development pertains to the development of the human being biologically and psychologically through his entire life cycle.
- The study of human development in a scientific manner is called developmental psychology.
- Developmental psychologists explore issues like how children are different from adults. The difference between them on qualitative basis, or on the basis of the experience adults have.
- Development psychology is also related to other applied fields, which include child psychopathology, educational psychology, forensic developmental psychology, cognitive psychology, comparative psychology and social psychology.
- Every child comes into this world with certain physical and mental characteristics that he got from his parents and ancestors. He is born with a body and mind, which developed from the fertilised ovum. His limbs and organs grow from the same. Some of his mental tendencies are also based on the same. This is all on account of heredity.
- Environment consists of multiple factors. It includes the social dimension, i.e., family, peers, school, teachers, level of education, neighbourhood, and exposure to different cultures. There is also the emotional aspect, which includes love, care, affection, and support from the people around. The last aspect of environment is the financial resources, such as the accessibility to latest technology among others.
- Development is significant because of the following factors:
 - (i) Development leads to change

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- (ii) Early development is critically important more than later development
- (iii) Maturation and learning both result in development
- (iv) Developmental pattern can be interfered with, temporarily or permanently, by environmental or physical conditions, which may speed or delay development
- (v) There is considerable similarity in developmental patterns across the human race.
- (vi) Development varies from one individual to another
- (vii) Social factors influence every developmental phase
- Lifespan development is the field of study that examines patterns of growth, change, and stability in behaviour that occur throughout the entire life span.
- Each of the broad topical areas of lifespan development—physical, cognitive, social, and personality development- plays a role throughout the life span

1.8 KEY WORDS

- **Adolescence:** The period following the onset of puberty during which a young person develops from a child into an adult.
- **Cognitive:** Related to the mental action or process of acquiring knowledge and understanding through thought, experience, and the senses.
- **Lifespan:** The length of time for which a person or animal lives or a thing functions.
- **Synthesis:** The act of combining components or elements to form a connected whole.
- **Coherent:** The quality of being logical and consistent.
- **Heredity:** The passing on of physical or mental characteristics genetically from one generation to another.
- **Harmonious:** Contributing to make a consistent whole.

1.9 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short-Answer Questions

1. What does developmental psychology entail?
2. Define heredity.
3. Give one reason why early development is more critical than later development.

4. How do social factors impact development phases?
5. What is lifespan development study all about?

Long-Answer Questions

1. Development leads to change. Justify this statement.
2. How do maturation and learning both result in development?
3. Why is it said that developmental characteristics are predictable? Give reasons.
4. Describe the major stages of development.
5. What is the relationship between personality and social development? Elaborate.

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UNIT 2 MATURATION ASPECTS OF DEVELOPMENT

NOTES

Structure

- 2.0 Introduction
- 2.1 Objectives
- 2.2 Maturation Aspects of Development: Significant Facts
 - 2.2.1 Definitions of Maturation
- 2.3 Physical, Social and Cognitive Development
 - 2.3.1 Physical Development
 - 2.3.2 Social Development
 - 2.3.3 Cognitive Development
 - 2.3.4 Moral Principles of Human Development
- 2.4 Answers to Check Your Progress Questions
- 2.5 Summary
- 2.6 Key Words
- 2.7 Self Assessment Questions and Exercises
- 2.8 Further Readings

2.0 INTRODUCTION

Many people use the words growth and maturation interchangeably. Growth refers to the physical process of development, especially the process of becoming physically larger. Growth can be quantified and measured, and is mostly influenced by genetics. Maturation is the physical, intellectual, or emotional process of development and it is not always possible to quantify it. While growth is physical, maturation is not only physical but also intellectual and emotional.

In this unit, you will learn about the maturation aspect of development of a human being. You will also learn about physical, social, cognitive and moral development.

2.1 OBJECTIVES

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

- Define maturation
- Explain the difference between physical, social and cognitive development
- Discuss the development of a human being through various stages of life, in terms of physical, social and cognitive development

2.2 MATURATION ASPECTS OF DEVELOPMENT: SIGNIFICANT FACTS

Learning and maturation are closely interrelated and interdependent on each other. Sometimes, it becomes difficult to determine as to which of the behavioural changes is the result of learning and which the consequence of maturation. A Weismann (1889) was one of the pioneers to suggest the concept of maturation. According to him, the germplasm is the carrier of heredity and is passed from generation to generation. Later, A Gesell (1930), popularised this term. According to him, “Growth is a process so intricate and so sensitive that there must be powerful stabilising factors, intrinsic rather than extrinsic, which preserve the balance of the total pattern and the direction of the growth trend. Maturation is in a sense a name for this regulatory mechanism.”

2.2.1 Definitions of Maturation

D C Marquis (1931) defined maturation in a more specific way. “Maturation is a modification of the organismic pattern in response to stimuli present in the inter-cellular and intra-cellular environments, which at the given moment are independent of external influences.”

At a later date, J A McGoeth (1942), defined the term maturation in terms of behavioural change. According to him, “Maturation includes any change with age in the conditions of learning which depends primarily upon organic growth factors rather than upon prior practice of experience.” Learning has been defined by McGoeth as, “A change in performance as a function of practice. In most cases, this change has a direction which satisfies the current motivating conditions of the individual.”

L Carmichael (1947) conducted extensive research on the problem of learning and maturation. He wrote, “Today, it is becoming more and more clear that during the whole period of growth and even during maturity, and again especially in the decline of capacity in old age, the behaviour of an organism can always be seen as resulting from the changes, structure and function.” He further observed that these changes were practically the result of inherited patterns and that some appeared to be somewhat independent of learning and environmental experience.

M L Biggie and M P Hunt (1968) observed, “Maturation is a development process within which a person from time to time manifests different traits, the *blueprints* which have been carried in his cells from the time of conception.”

George G Thompson (1979) stated, “Maturation is a name for the growth process during which a structure or a function is more and more becoming adult, i.e., mature.” He further observed that these definitions stressed on different aspects of the maturation process, but were essentially similar in their emphasis on organically internal growth process, that were primarily independent of environmental factors external to the organism.

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Thus, maturation involves changes that are associated with normal growth. It is relatively independent of activity, experience and practice. Learning, on the other hand, is a change in an individual, not on account of genetic inheritance, but because of changes in the behaviour in the learning process from activity, experience and training. It is a process which takes place as a result of ‘stimuli’ from ‘without’.

The behaviour is said to have matured if a behaviour sequence develops through regular stages, irrespective of intervening practices or training. If training procedures do not modify or speed up the behaviour, they are not important and the changes do not fall into the category of learning.

The swimming of tadpoles and the flying of birds can be attributed, primarily to maturation. But in the case of human beings, it is not easy to decide whether the activities result from maturation or learning. The simplest example is that of a child. The child learns to talk only when he reaches a certain stage or age. It is also equally true that he does not learn the language just because he attains that age. The language is taught to him. The language which he learns is that which he hears. Thus, it is very clear that the two processes, maturation and learning, are closely related to each other. Maturation helps in the process of learning. Learning can take place only if the stage for the particular type of learning has been laid through a process of maturation. A teacher would be effective if he understands the complexity of the changes that take place as a result of both these processes and the interaction between them. The reverse would be harmful. For instance, the normal development of speech in a child would be disrupted if he is forced to learn certain speech patterns before attaining a certain level of maturation. On the other hand, failure to provide specific training in speech at the appropriate time may be a great educational error.

Check Your Progress

1. Why is maturation a regulatory mechanism?
2. How did McGoeth define maturation?
3. Differentiate between learning and maturation.
4. What is the sign of mature behaviour?

2.3 PHYSICAL, SOCIAL AND COGNITIVE DEVELOPMENT

As was mentioned in the previous unit, developmental psychologists classify human development into three areas: physical development, cognitive development, and psychosocial development. Lifespan development is categorised into different stages on the basis of age—prenatal, infant, child, adolescent, and adult.

2.3.1 Physical Development

The body develops rather rapidly physically, during the stages of infancy, toddlerhood, and early childhood. New-born babies usually weigh between five and 10 pounds, it is natural for their weight to double in six months and increase three times by the time they are a year old. A year later, when they are touching two, their weight will have increased four times. So, a two-year will typically weigh anywhere between 9.5 to 19 kgs. A new-born infant will be about 19.5 inches long, and will grow to be 29.5 inches by the time it turns one year old. In two years, babies grow to about 34.4 inches, as per the WHO Multicentre Growth Reference Study Group, 2006.

Growth rate is not steady during infancy and childhood (Carel, Lahlou, Roger, & Chaussain, 2004). Between the ages of four and six years, growth rate is slow. This is the time that children gain weight, about 2.5 kgs to over 3 kgs. This is also the time when they gain in height — about two to three inches a year. On turning eight or nine, the girls outdo the boys in terms of growth rate. This is due to the growth spurt associated with puberty. Growth continues to shoot till about the age of 12, by when the menstrual cycle begins. On an average, girls weigh about 39 kgs by the age of ten. Boys, on the other hand, weigh about 37 to 38 kgs. Their brain size also increases fast.

Motor development takes place in an orderly manner, as babies who were only used to reflex reaction, start showing more motor movements. For instance, infants take some time to hold their heads up and their neck steady first, only then do they move on to trying to sit on their own without help, and then advance to crawling, standing and walking. Motor skills pertain to the ability of the human body to move and handle objects.

Physical development during various stages of maturation are discussed in detail in the later units.

2.3.2 Social Development

Psycho-social development occurs when kids begin establishing relationships and interacting with others. They begin understanding their own feelings and managing them too. In case of social and emotional development, it is essential to form healthy attachments, which is a key social milestone of infancy. Establishing a strong and long-lasting bond with others also happens in this stage.

But how exactly do infants achieve this milestone? How does parent-child bonding take place? How is this bonding affected by neglect? Why does the level of attachment vary from child to child? Psychologists believe that sense of comfort and security are essential to bring about maternal-infant bonding. This results in healthy psychosocial development.

The attachment theory was developed by John Bowlby, who believed that attachment is the bond of affection that the baby forms with the mother (Bowlby, 1969). This bond should be established with the main person taking care of the baby so that the baby's develops normally, both emotionally and socially. Bowlby

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also suggested that this bonding or attachment should be strong enough to last through an entire lifetime. He defined healthy parent-child attachment in terms of a stable and strong base. The base or foundation is made secure by the presence of parents, which provides the child a sense of safety as he explores his surroundings. Bowlby listed two essential things for a healthy attachment: A caregiver who responds to the child's physical, social, and emotional needs; and mutually enjoyable interactions between the child and caregiver and child.

The fact that children develop a positive sense of self is the main psychosocial milestone of childhood. Two to four year olds display a very strong improvement in social behaviour once they recognise the self. While they look forward to spending time with other kids, playing, they find it very difficult to part with their belongings or share their possessions with them.

Psycho-social development in children, adolescents and youth are discussed in detail in the units ahead.

2.3.3 Cognitive Development

Besides fast physical growth, children's cognitive abilities also display noticeable development. According to Piaget, the cognitive skills of children developed at a slow rate as they attained maturity and interacted with their surroundings. For instance, it took a child a while to understand that a rattle makes noise if shaken. However, modern developmental psychologists do not agree with Piaget. According to researchers, even small children realise how objects work well before they actually experience handling those objects. Cognitive skills go on expanding in six-year olds too, right till they turn 11, that is, through middle and late childhood. Their thought processes become more logical and organised while dealing with solid information. When they become adolescents, they are able to think better and handle more complex thoughts. This happens due to a spurt in the processing speed and efficiency and not because of improved mental capacity. Simply put, this is not because new skills have developed but because there are improvements in existing skills.

Cognitive development in childhood, adolescence and young age are discussed in detail in various units ahead.

2.3.4 Moral Principles of Human Development

Moral development is about morality — its birth, change, and comprehension from infancy through adulthood. It takes a whole lifetime for morality to develop. It is affected by personal and individual experiences and behaviour. It develops when people encounter moral issues through various stages of physical and cognitive development. Morality is all about an individual's increasing sense of right and wrong. That is why, children's characters and moral judgement differ from that of adults. Morality is synonymous with "rightness" or "goodness". It pertains to a specific code of conduct based on an individual's culture, religion or personal philosophy that drive her/his actions, behaviours and thoughts.

Confucius, Aristotle, and Rousseau were the earlier philosophers to study the notion of morality. Their approach was more humanistic and they emphasised on the development of the conscience and sense of virtue. Modern studies have examined morality through the lens of moral psychology. Sigmund Freud and other theorists, such as Jean Piaget, Lawrence Kohlberg, B. F. Skinner, Carol Gilligan and Judith Smetana have studied morality in relation to cognitive development.

Moral principles of human development are discussed in detail in Unit 8.

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Check Your Progress

5. How long are two-year-old babies approximately?
6. What are motor skills?
7. How is a bond established between a mother and a child?
8. Who propagated the theory of attachment?
9. How does cognitive ability develop in six to 11-year olds?
10. How does moral development take place?

2.4 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. Maturation comprises stabilising factors that preserve the balance of the total pattern of growth and the direction of the growth trend. Therefore, it is aptly called a regulatory mechanism.
2. J A McGoeth (1942), defined the term maturation in terms of behavioural change—“Maturation includes any change with age in the conditions of learning which depends primarily upon organic growth factors rather than upon prior practice of experience.” Learning has been defined by McGoeth as, “A change in performance as a function of practice. In most cases, this change has a direction which satisfies the current motivating conditions of the individual.”
3. Maturation involves changes that are associated with normal growth. It is relatively independent of activity, experience and practice. Learning, on the other hand, is a change in an individual, not on account of genetic inheritance, but because of changes in the behaviour in the learning process from activity, experience and training. It is a process which takes place as a result of external ‘stimuli’.
4. The behaviour is said to have matured if a behaviour sequence develops through regular stages, irrespective of intervening practices or training.
5. Two-year old babies are about 34.4 inches on an average.

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6. The ability of the human body to move and handle objects is referred to as motor skills.
7. It is due to a sense of comfort and security offered by a mother that leads to maternal-infant bonding.
8. John Bowlby developed the attachment theory. He believed that attachment was the bond of affection established by the baby with its mother.
9. Children in the age range of six to 11 become more logical and organised in handling concrete information. As they attain adolescence, their thinking improves further and they become capable of more complex thoughts.
10. Morality develops when people encounter moral issues through various stages of physical and cognitive development. It develops with the individual's development of the sense of right and wrong.

2.5 SUMMARY

- Learning and maturation are closely interrelated and interdependent on each other
- In DC Marquis' words, "Maturation is a modification of the organismic pattern in response to stimuli present in the inter-cellular and intra-cellular environments, which at the given moment are independent of external influences."
- Growth rate is not steady during infancy and childhood. Between the ages of four and six years, growth rate is slow. Then there is a spurt. Growth continues to shoot till about the age of 12, by when the menstrual cycle begins for girls.
- Psycho-social development occurs when kids begin establishing relationships and interacting with others.
- Psychologists believe that sense of comfort and security are essential to bring about maternal-infant bonding
- According to Piaget, the cognitive skills of children developed at a slow rate as they attained maturity and interacted with their surroundings.
- Modern developmental psychologists and researchers disagree with Piaget and argue that even small children realise how objects work well before they actually experience handling those objects.
- It takes a whole lifetime for morality to develop. It is affected by personal and individual experiences and behaviour.
- Morality is synonymous with "rightness" or "goodness".

2.6 KEY WORDS

- **Stimuli:** Things or events that evoke a specific functional reaction in an organ or tissue.
- **Blueprints:** Designs or plans or technical drawings.
- **Prenatal:** Pregnancy-related or before birth.
- **Puberty:** Period during which adolescents reach sexual maturity and become capable of reproduction.
- **Milestone:** Significant stage or event in the development of something.
- **Adolescence:** The period following the onset of puberty during which a young person develops from a child into an adult.

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2.7 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short-Answer Questions

1. Differentiate between learning and maturation.
2. What is McGoeth's definition of maturation?
3. State the main psychosocial milestone of childhood in terms of social development?
4. What is the difference between the approach to the study of morality by the earlier philosophers, such as Confucius and the modern psychologists?

Long-Answer Questions

1. Explain how learning and maturation are related to each other?
2. How would you define maturation based on the opinions of Thompson, Carmichael, Goeth and Marquis? Give reasons.
3. Discuss the social development of a human being with focus on the attachment theory.
4. Discuss cognitive development in detail.

2.8 FURTHER READINGS

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Websites

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UNIT 3 FACTORS INFLUENCING HUMAN BEINGS

NOTES

Structure

- 3.0 Introduction
- 3.1 Objectives
- 3.2 Ecological Factors
- 3.3 Heredity Factors
 - 3.3.1 Determination of the Sex of the Child
 - 3.3.2 Chromosomal Abnormalities
- 3.4 Answers to Check Your Progress Questions
- 3.5 Summary
- 3.6 Key Words
- 3.7 Self Assessment Questions and Exercises
- 3.8 Further Readings

3.0 INTRODUCTION

When we talk of physical development of children, growth refers to the improvement in the child's size that is physical growth. Development, on the other hand, refers to the process by which the child improves his or her psychomotor skills. Both these are highly dependent on the immediate environment that the child is brought up in, among other factors. However, in this unit, you will learn about the ecological factors that impact the development of human beings. You will also learn about the role played by heredity.

3.1 OBJECTIVES

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

- List the ecological factors that affect the growth and development of human beings
- Discuss the role played by heredity, human development and growth
- Understand the effect of chromosomal abnormalities in individuals

3.2 ECOLOGICAL FACTORS

For decades now, the focus of the study of ecological influences on human physical growth and development has been the impact of social and economic factors; family traits; urban lifestyles; modernisation; nutrition levels; and characteristics of the physical environment, such as temperature, climate, geographical location, and so on.

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The effect of pollution levels and other man-made aspects of the environment on human growth and development, particularly the timing of puberty and the development of obesity has also been.

The home environment, society, community, physical surroundings, and school have a strong effect on human behaviour, the manner of interaction between individuals, their thought processes, growth and the way they process emotions. Nurturing environments have a significant role to play in ensuring good health and smooth development.

Factors such as poverty can impact individual growth and development. For instance, a nurturing environment will promote healthy growth and development, whereas, children brought up in poor families, in weak economic conditions, are found to be malnourished and underweight. Therefore, their growth is also stunted. Clearly, poverty is a hurdle to development and in turn, poses a threat to a person's mind and body.

Poverty is a cause for poor academic performance and may even lead to depression in many people, even at a very young age. Children who grow up in poor and troubled homes are often victims of abuse and grow up to be violent, aggressive and complicated individuals. They prove to be weak students lacking mental agility and alertness.

The personality of children who grow up witnessing frequent arguments between their parents or are exposed to brawls and conflicts in their immediate neighbourhood, is adversely affected by what they see and hear.

Children whose parents share a stable and loving relationship grow up feeling confident, loved and valued. This makes them strong personalities.

An overcrowded home or one where there is always loud noise can also adversely affect the child's development. If there are too many members in the house, the child gets to spend less quality time with the parents and ends up looking for ways to keep herself busy. This creates a distance between the child and the parents and reduces bonding. Children whose parents take them out to parks for a stroll frequently, give them opportunities to interact with other kids and parents, and also get acquainted with nature, are seen to grow up to be healthy adults.

Check Your Progress

1. How does the relationship of parents affect a child's development?
2. What are some of the ecological factors that affect the development of a human being and his/her behaviour?

3.3 HEREDITY FACTORS

Scholars have viewed the influence of heredity and environment on the development of an individual differently. There are also certain extreme views. However, the fact

remains that the functioning of heredity and environment is similar to that of two eyes, two hands, two feet, and two legs, on the development of a person. Each one is complementary and supplementary to the other. Sometimes one plays a more dominant role and the other a relatively less dominant role. For the balanced and harmonious development of an individual, a balanced and harmonious interaction between heredity and environment is very essential. Of course, each has its limitations. Each can influence the development of the individual to a limit. The role of the home and the school is to ensure that optimum use is made of these limits.

Some basic principles of heredity are:

1. *Like tends to beget like*: Dark parents generally have dark children, tall parents tall children, bright parents bright children, fair parents fair offspring and so on. This is true of all other characteristics and racial differences. 'Nature sees to it that each species or genus breeds true to type, save where there are laws governing occasional deviations.'
2. *Principle of variance*: Only certain traits follow hereditary laws. Common observation shows that although like tends to beget like, the resemblances of parents and their offspring are never perfect. Black-eyed children may be born to brown-eyed parents. Even two twins are not exactly alike.
3. *Principle of convergence of two-life streams*: A portion of inheritance comes from the maternal side and the remaining portion is contributed by the paternal side, i.e. the child's maternal and paternal lines, both contribute about 50 per cent each of his inheritance. More specifically, it is generally assumed that $\frac{1}{2}$ comes from parents, $\frac{1}{4}$ from his grand-parents, $\frac{1}{8}$ from his great grand-parents and so on from all the other more remote ancestors.
4. *Principle of chance*: Chance plays an important role, making any absolute prediction almost impossible. This is on account of several reasons:
 - (i) Pairing of the chromosomes in the state of flux
 - (ii) Cell to which the set of maternal or paternal chromosomes go during the reduction division
 - (iii) Particular cell which unites with another in the maternal and paternal lines
 - (iv) Pattern of genes in any chromosome
 - (v) Genes carried in any particular chromosome
 - (vi) Crossing over of genes from one paired chromosome to another
 - (vii) How dominant and recessive traits will be distributed according to the three to one ratio, according to Gregor Mendel's Law (1866), especially if there are less than four children in the family
 - (viii) Determination of sex

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5. *Principle of dominant and recessive traits*: Some traits are dominant while others are recessive causing apparent exceptions to the principle of like produces like. The union of the best traits of the father with the best traits of the mother produces talented children. Therefore, a talented father or mother must be the offspring of the best combination of the determiners in the germ cells of their parents. But such gifted parents may carry on the determiners of genes which are average. There are many chances that when they produce a child, their average traits combine and a child of average calibre may be the result.

The reasons of variation are still a mystery. All that can be said about variations is that it is a fact.

Hereditary traits

Hereditary traits may be divided into two categories: physical traits and mental traits.

Physical traits include eye-colour, white forelock of hair, colour-blindness, blood type, skin colour, height and several other bodily features. Mental traits include intelligence and musical talents, etc.

It must be remembered that each parent is the inheritor in equal parts from both parents who in turn, inherit equally from their parents. The stream of life flows on and the child inherits his capital not from his parents but through his parents. This fact explains why a child has the chin of his mother, the forehead of his father, the blue colour of eyes from his grandfather, the hair from his uncle, the nose from his aunt and so on. Why no two individuals of the same family are perfectly identical!

A good number of observations have shown the presence of some sort of determiners in the human life-producing cell, which determine, even before birth, certain traits of the individual. It, however, does not mean that a child must always be exactly like his parents—father or mother. Actually, we observe often that the children do not inherit some of the most distinguishing traits of their parents. For example, the parents are of black colour while the child is white. The parents are extraordinary genius while the child is an idiot. The child does not resemble his brothers and sisters. Why is it so? The answer according to one view is that the characteristics of the child depend not only upon the parents alone but also grandparents and even great grandparents. Variations are also on account of the chance factor.

It is purely by chance that a particular sperm fuses with a particular ovum to form a zygote. Moreover, in zygote there are 23 pairs of chromosomes, 23 of which are contributed by the sperm of the father and 23 by the ovum of the mother. Which chromosomes from the ovum will pair with which chromosomes from sperm is sheer chance. Millions of permutations and combinations are possible for the union of chromosomes, which contain genes. That explains why no two individuals are perfectly identical.

The traits of the ancestors besides those of immediate parents are also transmitted to the offspring through these genes. Therefore, it is possible that the child will possess certain traits that are traceable to one or more of the ancestors, even though they may not be found in either of the parents.

Recent researches

Revolutionary discoveries in genetics have been made in recent years. Even artificial or synthetic genes have been produced under laboratory conditions. After the test tube baby, there has occurred a phenomenal advancement in genetic surgery. The task of controlling production of future human beings involves the control of two genetic chemicals—DNA (Deoxyribonucleic acid which molecule is the throbbing centre of life) and the RNA. DNA molecule governs our past, our present and our future and controls all aspects of body formation. It is like a computer containing in its arrangement of atoms, the key to heredity, ageing, disease, mind and memory. Any control of the genetic material in DNA will involve the synthesis in the laboratory of artificial DNA with the atoms arranged in a specific order to produce a particular type of individual the new man.

3.3.1 Determination of the Sex of the Child

Of the 23 pairs of chromosomes, one pair is responsible for determining the sex of the child. This pair is called the sex chromosome. In the male, one member of the pair is an X chromosome, while the second member, which is smaller in size, is called a Y chromosome. Females have two X chromosomes. At the time of conception, mother has no alternative but to contribute X sex chromosome; while the father may contribute X or Y chromosome. If a child receives the same chromosomes X from the parents, she will be female child, if father's contribution is in the form of Y chromosome, it will be a male child. From this, we may easily conclude that it is totally incorrect to blame either of the parents for the sex of the child. If at all there is some role, which may be considered dominating, it is of the father not of the mother as she is neutral in providing the X chromosome always for the conception.

Identical and fraternal twins

Normally at the time of fertilization, a sperm of the male fertilizes a single ovum. It results in the birth of a single offspring at one time. But sometime this normal function is disturbed and there are cases of multiple births—the birth of two or more off-springs at a time. There are two distinctly different types of twins, namely, identical twins and fraternal twins.

Identical twins: Usually the fertilization of one ovum by one sperm produces the offspring. Sometimes, however, it so happens that when the ovum splits, because of fertilization the two parts fail to unite. The result is that each part develops into a complete individual. The twins formed thus are called identical because they, carry the exact same genes. They possess almost the same characteristics and are definitely of the same sex.

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Fraternal twins: Normally in the ovary of the human female during each menstrual period, only one ovum is matured but it may happen that two or more ova may mature simultaneously and be fertilized at the same time by two different sperms. The result is that two different zygotes are produced. The individuals thus produced are known as the fraternal twins. They have a different combination of chromosomes and genes as both ova are fertilized by different sperms. Fraternal twins, therefore, are sure to differ in many traits. Like the identical twins, they need not belong to the same sex. They may belong to the same or opposite sex.

Check Your Progress

3. List some basic principles of heredity.
4. What are the two classes of heredity traits?
5. Which chromosome determines the sex of a child?
6. How can genetic material be controlled in DNA?

3.3.2 Chromosomal Abnormalities

Each cell of the body comprises 23 pairs of chromosomes—46 chromosomes in total. 50 per cent of these come from our mother, and the other half come from our father. The first 22 pairs are called autosomes. The 23rd pair is made up of the sex chromosomes, X and Y. Women usually have two X chromosomes, while men usually have one X and one Y chromosome in each cell. Whatever information the body requires for growth and development is derived from the chromosomes, each of which is made up of thousands of genes. These generate proteins that facilitate the body's development, growth, and chemical reactions.

There are various types of chromosomal abnormalities, but they can be broadly classified into numerical or structural. Numerical abnormalities are whole chromosomes, which are either missing from or in addition to the normal pair. Structural abnormalities occur when a portion of an individual chromosome is absent, extra, switched to another chromosome, or flipped upside down.

Chromosomal abnormalities can be accidental when the egg or the sperm is created or during the early stages of foetal developmental. A significant role is played by the mother's age as well as certain ecological factors in causing genetic mistakes. These defects can be detected during prenatal screening and testing wherein the foetus' chromosomes are examined. However, this method will detect only some defects or abnormalities, not all.

Chromosomal abnormalities cause various effects, depending on the particular abnormality. For instance, an extra copy of chromosome 21 leads to Down syndrome (trisomy 21). Chromosomal irregularities also lead to miscarriage, disease, or issues pertaining to growth or development.

The most common type of chromosomal abnormality is called aneuploidy, which is an abnormal chromosome number because of an extra or absent

chromosome. Usually, people with aneuploidy have trisomy (three copies of a chromosome) instead of monosomy (single copy of a chromosome). Down syndrome is said to be the most common instance of chromosomal aneuploidy.

Structural chromosomal abnormalities are caused due to breakage and incorrect rejoining of chromosomal parts. A series of structural chromosomal abnormalities lead to disease. Structural readjustments are said to be balanced if the complete chromosomal set still exists, though in a restructured state, and unbalanced if information is extra or altogether absent. Instances of unbalanced rearrangements are deletions, replications, or insertions of a chromosomal segment. Ring chromosomes result from a chromosome experiencing two breaks and the broken ends joining together to form a circular chromosome. An isochromosome may be formed if one arm of the chromosome is absent and the remaining arm duplicates.

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Check Your Progress

7. How many chromosomes are contained in each body cell?
8. What is the role of chromosomes in the human body?
9. What are the factors that cause genetic errors?
10. What is the effect of chromosomal abnormality?

3.4 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. If the parents have a stable relationship, the child will witness a lot of affection and will grow up to be valued and wanted.
2. The immediate environment, such as the home, neighbourhood and school impact the behaviour of the child. The manner of interaction between parents, between parents and relatives, parents and neighbours and parents and child also affects behavioural development. The economic condition of the family, the geographical location, family traits and climate are also impacting factors.
3. Some of the basic principles of heredity include the following: like tends to beget like, principle of variance, principle of convergence of two-life streams, principle of chance and principle of dominant and recessive traits.
4. The two types of heredity traits are physical and mental traits.
5. Of the 23 pairs of chromosomes, one pair is responsible for determining the sex of the child. This pair is called the sex chromosome.
6. Any control of the genetic material in DNA will involve the synthesis in the laboratory of artificial DNA with the atoms arranged in a specific order to produce a particular type of individual the new man.

NOTES

7. Each cell of the body has 23 pairs of chromosomes, 46 in total.
8. Whatever information the body requires for growth and development is derived from the chromosomes, each of which is made up of thousands of genes. These generate proteins that facilitate the body's development, growth, and chemical reactions.
9. A significant role is played by the mother's age as well as certain ecological factors in causing genetic mistakes.
10. Chromosomal abnormalities cause various effects, depending on the particular abnormality. For instance, an extra copy of chromosome 21 leads to Down syndrome (trisomy 21). Chromosomal irregularities also lead to miscarriage, disease, or issues pertaining to growth or development.

3.5 SUMMARY

- For decades now, the focus of the study of ecological influences on human physical growth and development has been the impact of social and economic factors; family traits; urban lifestyles; modernisation; nutrition levels; and characteristics of the physical environment, such as temperature, climate, geographical location, and so on.
- Nurturing environments have a significant role to play in ensuring good health and smooth development.
- Factors such as poverty can impact individual growth and development. For instance, a nurturing environment will promote healthy growth and development, whereas, children brought up in poor families, in weak economic conditions, are found to be malnourished and underweight. Therefore, their growth is also stunted.
- Poverty is a cause for poor academic performance and may even lead to depression in many people, even at a very young age.
- An overcrowded home or one where there is always loud noise can also adversely affect the child's development.
- Common observation shows that although like tends to beget like, the resemblances of parents and their offspring are never perfect.
- A portion of inheritance comes from the maternal side and the remaining portion is contributed by the paternal side, i.e. the child's maternal and paternal lines, both contribute about 50 per cent each of his inheritance.
- Chance plays an important role, making any absolute prediction almost impossible.
- Hereditary traits may be divided into two categories: physical traits and mental traits.
- The traits of the ancestors besides those of immediate parents are also transmitted to the offspring through these genes.

- The most common type of chromosomal abnormality is called aneuploidy, which is an abnormal chromosome number because of an extra or absent chromosome.
- Structural chromosomal abnormalities are caused due to breakage and incorrect rejoining of chromosomal parts.

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3.6 KEY WORDS

- **Chromosome:** A thread-like structure of nucleic acids and protein found in the nucleus of most living cells, carrying genetic information in the form of genes.
- **Fraternal:** Developed from separate ova and therefore genetically distinct and not necessarily of the same sex or more similar than other siblings.
- **Zygotes:** A diploid cell resulting from the fusion of two haploid gametes; a fertilized ovum.
- **Genes:** A unit of heredity which is transferred from a parent to offspring and is held to determine some characteristic of the offspring.
- **Permutation:** Each of several possible ways in which a set or number of things can be ordered or arranged.
- **Traits:** A distinguishing quality or characteristic, typically one belonging to a person.
- **Recessive:** Relating to or denoting heritable characteristics controlled by genes which are expressed in offspring only when inherited from both parents.

3.7 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short-Answer Questions

1. What are some of the ecological factors that affect the growth and development of human beings?
2. What is meant by heredity?
3. What is the principle of variance?
4. What are the physical heredity traits?
5. What are the mental heredity traits?
6. How does Down Syndrome occur?
7. What is aneuploidy?

Long-Answer Questions

1. Discuss the ecological factors that hamper the growth and development of a human being.

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2. What is the role of heredity in human growth and development?
3. Discuss the basic principles of heredity.
4. Explain the role of chance in heredity.
5. What role do chromosomes play in heredity and in growth and development, in general?
6. How do chromosomal abnormalities occur? What are the effects? Explain in detail.
7. Differentiate between trisomy and monosomy.

3.8 FURTHER READINGS

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UNIT 4 PRENATAL DEVELOPMENT AND INFANCY

NOTES

Structure

- 4.0 Introduction
- 4.1 Objectives
- 4.2 Stages of Prenatal Development
 - 4.2.1 Teratogens
 - 4.2.2 The Process of Birth: New Born Appearance
 - 4.2.3 Postnatal Development
- 4.3 Consciousness States of Infancy
- 4.4 Answers to Check Your Progress Questions
- 4.5 Summary
- 4.6 Key Words
- 4.7 Self Assessment Questions and Exercises
- 4.8 Further Readings

4.0 INTRODUCTION

Development begins at conception. Although most prenatal development takes place within the physical domain, developments in the cognitive and psychosocial domains also take place at this time. Also, although these developments are determined by genetic and maturational forces, experiential factors have a significant role during this time.

The senses starts functioning between 8 and 26 weeks, with touch developing first, followed by taste, smell, hearing, and finally vision. Movements— large generalised ones and that of specific body parts — first appear between 7 and 16 weeks of gestation. Starting at about 28 weeks, the foetus begins to show rest-activity cycles. Four distinct behavioural states are noticed at around 36 weeks: quiet sleep, active sleep, quiet awake, and active.

In this unit, you will learn in detail about the stages of prenatal development, postnatal development and the consciousness states of infancy.

4.1 OBJECTIVES

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

- List the various stages of prenatal development
- Discuss the characteristics of each stage of prenatal and postnatal development
- Outline the significance of teratogens
- List the consciousness states of infancy

4.2 STAGES OF PRENATAL DEVELOPMENT

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Over a relatively brief nine-month period, a single-celled zygote transforms into a fully formed foetus made up of around one trillion cells. This period of astonishing growth consists of three distinct phases: the germinal stage, the embryonic stage, and the foetal stage.

The entire zygote is contained within the zona pellucida, a delicate envelope that forms its boundaries.

Germinal Stage

The germinal stage is sometimes referred to as the zygotic period and represents the first two weeks of development from the time of conception through the development of the cluster of cells known as the embryo. First, the zygote begins to divide and become a blastocyst, which will attach itself to the uterine wall during a process known as implantation.

This process takes place over 8 to 10 days to 2 weeks and ends with egg attachment to uterine wall. Cleavage—the mitotic division of the zygote into several cells; begins at 24 hours after conception. Division rates are different and this yields heterogeneity—variability in the rate of change of different parts.

1. As cleavage occurs, a cluster of cells called the morula take shape in the zona pellucida. After the 5th day post-conception, the cells begin taking in nutrients; this is the first interaction with the environment (the fallopian tube).
2. A fluid filled cavity forms in the morula thus facilitating the change into a blastocyst—hollow sphere of cells. The blastocyst has two kinds of cells. One set of small cells are the inner cell mass, which gives rise to the organisms; whereas the other set of flat cells surrounding the inner cell mass called the trophoblast, form a protective barrier between the inner cell mass and the environment.
3. As the blastocyst moves further into the uterus, the trophoblast cells branch out into the mother's uterus to the blood vessels. This begins implantation, the process by which the blastocyst becomes attached to the uterus. This action marks the transition to the embryonic period.

Embryonic Period

The embryonic period lasts from fertilisation to the beginning of the third month. The human being begins to develop very distinctly after morphogenesis. Cells begin to take on specific functions and structures in a process called differentiation. For the first time, the actual size of the daughter cells begins to grow. Up until this point, the cells that were divided were no larger than the parent cells, causing no growth in size.

The cells begin to develop into layers. The upper layer is the ectoderm, which later becomes the skin and nervous system; the middle layer is the mesoderm, which becomes the muscles, circulatory system, and connective tissue; and the lower is the endoderm, which becomes the linings of the digestive and respiratory tracts.

At this point, the foetus also has developed a circulatory system; however, it is slightly different from adults in that it shunts blood away from its unused lungs. Organs like the spinal cord and heart have developed. The effect of the embryonic period on the mother is significant. This is the period when the mother may experience 'morning sickness' symptoms such as nausea, fatigue, and loss of appetite. The uterus at this time develops from the size of a hen's egg to bigger than an orange and can be felt above the pubic bone up to 8 weeks; ends when all major organs have formed. The embryo is surrounded by the amnion, a thin, tough, transparent membrane that holds the amniotic fluid, which protects the embryo from damaging movements.

1. Surrounding the amnion is the chorion, the precursor to the placenta, a complex organ of tissue from the mother and embryo that acts as a filter allowing oxygen, nutrients, and waste to be exchanged. Waste is filtered through the mother's kidneys and excreted.
2. While the trophoblast is forming the placenta and other membranes, the inner cell mass is busy evolving into organs. Then the inner cell mass separates into two layers:
 - (a) **Ectoderm** – outer; skin, nails, teeth, eye lens, inner ear, and nervous system
 - (b) **Endoderm** – inner; digestive system and lungsThen a third layer develops between these two:
 - (c) **Mesoderm** – Middle; muscles, circulatory system and inner skin
3. **Organogenesis** – Process of organ formation that takes place during first two prenatal months
4. Human growth follows two patterns from now until adolescence:
 - (a) **Cephalocaudal** – Head to toe (arms then legs)
 - (b) **Proximodistal** – Inside to out (shoulder before wrists)

Foetal Period

The foetal period lasts from the third to the ninth month of pregnancy. From 9 weeks to birth (30 weeks); bones harden and infant is able to survive outside mother. At 17 to 18 weeks, foetal activity declines as the higher regions of the brain develop. This period of inhibited activity persists until six months. Then activity

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increases. At this point, the foetus experiences endogenous (internal to foetus) and exogenous (external) movement. Movement is essential for limb development.

The foetus is now looking more humanlike and grows to resemble a baby more every day. The growth of the body begins to speed up to catch up with the large size of the already developed head (from the embryonic period). The epidermis (outer layer of skin) begins to be polished, developing eyelashes, eyebrows, head hair, and fingernails.

Month-by-month breakdown

During the third month of pregnancy, the difference between sexes is visible. By the fourth month, the foetus begins to look much more human. Beginning at the fifth month, the mother is able to feel the movements of the foetus. By the end of the seventh month, the foetus weighs about three pounds and its eyes open. Toward the end of the foetal period, the foetus usually begins to shift in position, with its head nearing the cervix of the mother. Fat accumulation beneath the skin causes weight gain in the foetus; it should weigh around seven pounds by the end of the ninth month.

Prenatal care

Appropriate prenatal care includes the following:

- Screening for conditions/disease
- Educational literature
- Information on social services
- Information on immunizations and future medical care
- Information on delivery and nursing

Sensory capacities

1. Motion – The vestibular system controls balance and develops and functions at five months. This helps foetus sense changes so it can adjust.
2. Vision – In the 26th week (6.5 months), the foetus senses light.
3. Sound – At 4th month the foetus responds to sound; foetuses prefer mother's voice postnatally because they are used to hearing it while in the womb.
4. Learning – Hard to investigate; studies have shown that newborns prefer their mother's heart rate over other heart rates, and when read 'Cat in the Hat' prenatally, newborns are calmed/comforted when it is read after birth.

Influences on prenatal development

Miscarriage/Spontaneous abortion

- Pregnancy ends before developing organism is mature enough to survive outside the womb.

- Embryo separates from uterine wall and is expelled by the uterus.
- About 15–20 per cent of all pregnancies end in spontaneous abortion, most in first 2–3 months (some before mother comes to know of pregnancy)
- Elected abortions yield risk to mother as well.

Maternal characteristics

1. The mother's conditions (physical, emotional, psychological) can affect the growing foetus.
2. Evidence shows that mother's attitude about pregnancy affects child long-term; anxious mothers yield hyperactive and irritable infants
3. **Malnutrition** – If foetus does not get sufficient nutrients before birth, MR and/or death can occur.
 - Not just Third World countries, there are many instances of poor prenatal care in USA.
 - Mothers are unusually concerned about their 'weight/figure'.
4. Mother's age is a factor. Prime child-bearing age is 22-28. Teenage mothers and women over 40 are more likely to have labour complications.

4.2.1 Teratogens

A teratogen is any agent that causes an abnormality following foetal exposure during pregnancy. Teratogens are usually discovered after an increased prevalence of a particular birth defect. For example, in the early 1960's, a drug known as thalidomide was used to treat morning sickness. Exposure of the foetus during this early stage of development resulted in cases of phocomelia, a congenital malformation in which the hands and feet are attached to shortened or truncated arms and legs.

Teratogens can also be found at home or the workplace. The effect is related to the type of agent, dose and duration and time of exposure. The first half of pregnancy is the most vulnerable.

Teratogenic agents include infectious agents (rubella, cytomegalovirus, varicella, herpes simplex, toxoplasma, syphilis, etc.); physical agents (ionizing agents, hyperthermia); maternal health factors (diabetes, maternal PKU); environmental chemicals (organic mercury compounds, polychlorinated biphenyl or PCB, herbicides and industrial solvents); and drugs (prescription, over-the-counter, or recreational). In general, if medication is required, the lowest dose possible should be used and combination drug therapies and first trimester exposures should be avoided.

The types or severity of abnormalities caused by a teratogenic agent is also dependent on the genetic susceptibilities carried by the mother and foetus. For

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example, variation in maternal metabolism of a particular drug will determine what metabolites the fetus is exposed to and the duration of exposure. The genetic susceptibility of the fetus to a particular teratogenic agent will also have an effect on the final outcome.

Two of the leading preventable causes of birth defects and developmental disabilities are alcohol and smoking. Alcohol use in pregnancy has significant effects on the fetus and the baby. Alcohol can pass from the mother's blood stream through the placenta to the fetus. Since alcohol is broken down more slowly in a fetus than in an adult, alcohol levels tend to remain high and stay in the baby's body longer. Birth defects associated with prenatal exposure to alcohol can occur in the first three to eight weeks of pregnancy, before a woman even knows that she is pregnant

There are many types of teratogens:

1. **Disease** – Illness and infections can affect the foetus prenatally and perinatally.
 - (a) **Rubella** – German measles; it is the fever that causes blindness in infants. We have vaccine.
 - (b) **AIDS** – About 50 per cent of infants born to HIV positive mothers acquire the disease; via prenatal barrier or during delivery.
 - (c) **Rh incompatibility** – Rh complex exists on surface of red blood cells. Mother and baby need to have same, either Rh+ or Rh-. If not, second child will be harmed because mother's body created antibodies to fight off the second child that mother's body perceives as an antigen (foreign substance). Only when mother is negative and infant is positive.
 - (d) **Fever** – If mother has high fever, foetus' core body temperature may get too high, thus, brain damage occurs; if foetus or infant gets fever, may result in MR or death.
2. **Drugs** – Nearly 60 per cent of all women take some form of drug during pregnancy. Here are 5 types of drugs and their known effects:
 - (a) Prescriptions – Thalidomide was given for nausea to pregnant women; effects included no limbs, vision and hearing deficits. Aspirin can also cause abnormalities.
 - (b) Tobacco – About 26 per cent higher chance of stillborn and death at birth. Infants have lower birth weight and more likely to die of SIDS.
 - (c) Alcohol – A heavy drinker may take up to 3 ounces of pure alcohol per day. If so, 71 per cent of these infants were abnormal

and/or have foetal alcohol syndrome – small head, underdeveloped brain, congenital heart disease, facial malformations, and joint anomalies.

- (d) Cocaine – Addictive stimulant; infants of cocaine using mothers are irritable, liable to react excessively to stimulation, uncoordinated, and slow learners (crack babies).
- (e) Methadone/Heroin – Infants are born addicted to these and must receive it after birth to aid with withdrawal; these infants are premature, underweight, prone to respiratory illness, and have low attention spans.

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3. Environment

- (a) Abuse – Any trauma that mom receives (e.g., get kicked in stomach) can damage foetus and result in MR or death.
- (b) Radiation – High doses can cause prenatal death, spontaneous abortion, and/or MR.
- (c) Pollution – What mom breathes, foetus receives as well.

4.2.2 The Process of Birth: New Born Appearance

A. Three stages of labour:

1. **First** – From first intense contraction until cervix (opening between uterus and vagina) is fully dilated.
2. **Second** – Begins when baby is pushed headfirst into vagina; contractions = 1 minute in duration and 1 minute apart.
3. **Third** – When baby emerges from vagina and uterus contracts, contractions expel placenta and other membranes.

B. Perinatal hazards (Delivery Complications)

1. Forceps/suction
2. Oxygen deprivation (anoxia)
3. Long contractions
4. Infection
5. Precipitate delivery – takes place too rapidly; too much force
6. Trauma (breech = butt first; transverse = lateral)

C. Use of drugs

1. Different drugs have been used: anaesthetics, analgesics and sedatives.
2. Effects on infant may occur because drugs pass through placenta barrier, blood brain barrier, and through umbilical cord. Long-term effects are not supported empirically (1992).

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3. Administration methods:

- (a) IV
- (b) IM
- (c) Epidural (spinal block)

D. Childbirth strategies

1. **Standard** – Hospital; waiting room; strapped in; become dilated; fully effaced; doctor comes; wheeled to delivery room; have baby; taken and cleaned up; returned; wheeled to recovery/own room.
2. **Leboyer method** – French obstetrician:
 - No violence to infant
 - Doctor places infant on mother's stomach
 - Uses warm lights and/or bath
 - Mother caresses infant before cutting cord
3. **Natural or prepared** – based on parent confidence
 - Usually no drugs involved
 - Flexible; lots of variance
4. **Lamaze method** – French obstetrician; strategies (mainly breathing) to help cope with pain during delivery so to use less or no medication
5. **The Doula** – Greek word for woman helper; are part of birthing team; like midwives

E. Family participation – Traditional childbirth methods have left family members out of delivery process.

Now, fathers go to regular doctor appointments, attend all prenatal classes, Lamaze classes, are labour 'coaches,' usually in delivery room.

The same changes are occurring for siblings as well (e.g., doctor visits, hospital tours)

F. Prematurity and low birth weight

These are two very different concepts:

1. **Prematurity** – When infant is born before 38th week of gestation. Leading cause of death to preterm babies is immature lungs; second is weak immune system.
2. **Low birth weight** – When infant weighs 2500 grams (83 oz; 5.5 lbs) or less at birth regardless if it is premature or not. These experience foetal growth retardation for reasons discussed earlier.

4.2.3 Postnatal Development

Postnatal is the period beginning immediately after the birth of a child and extending for about six weeks. Another term would be postpartum period, as it refers to the mother (whereas postnatal refers to the infant). Less frequently used is puerperium.

It is the time after birth, a time in which the mother's body, including hormone levels and uterus size, returns to a non-pregnant state. Lochia is postpartum vaginal discharge, containing blood, mucus and placental tissue.

In scientific literature, the term is commonly abbreviated to PX. So that 'day P5' should be read as 'the fifth day after birth'. This is not to be confused with medical nomenclature that uses G P to stand for number of pregnancy and outcome of pregnancy.

Health, Actions and Reactions of the Neonate

Upon its entry to the air-breathing world, without the nutrition and oxygenation from the umbilical cord, the newborn must begin to adjust to life outside the uterus. Also starts his/her adaptation to extra uterine life, the most significant physiological transition until death.

Measures of Neonatal Health

One's infant might look deformed at first. Average weight of newborn in the US = 7–7.5 lbs.

1. Infant's viability – after birth, hospital staff assess infant's vital signs: heart rate, lung capacity, startle response, and other reactions.
2. Physical state – **Apgar scale** – is used throughout USA: heart rate, respiratory effort, muscle tone, reflex responsiveness and color; used at 1 and 5 minutes after birth; rating scale = 0–2; higher scores (7–10) indicate good health.
3. Behavioural state – **Brazelton Neonatal Assessment Scale** – assesses physical, psychological and neurological functioning; 20 reflexes are assessed; 27 items making 4 subscales: physiological, motoric, state and interaction. Low scores can reflect brain damage.

Neonate Reflexes Assessment

The infant is born with basic reflexes that are genetically carried survival mechanisms. Some reflexes—coughing, blinking and yawning—persist through life.

There are four primary reflexes (disappear around 3–4 months):

1. **Sucking reflex** – aids with nutrition before associations are learned
2. **Rooting reflex** – touch cheek; will turn towards touch to suck
3. **Moro reflex** – startle response to intense or quick movements; stretches out all limbs; alerts parent infant is uncomfortable

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4. **Grasping reflex** – touch infant’s palm and it will grasp finger; aids in attachment

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Postpartum Period in Mothers

Birth marks the beginning of the parent–child relationship.

1. **Appearance** – How the infant is shaped and looks can determine the parents’ response to it.
2. **Attachment** – Primary bond between infant and primary caregiver (usually mother) that is thought to need to take place immediately after birth; it is physical, emotional, and psychological bond. This is another example of a critical period of development.
3. The postpartum period is the adjustment period after delivery. Varies but on average, lasts 6 weeks, when return to pre-pregnancy state (more like 9 months). Changes occur very quickly.

A woman in the Western world delivering in a hospital may leave the hospital as soon as she is medically stable and chooses to leave, which can be as early as a few hours postpartum, though the average for spontaneous vaginal delivery (SVD) is 1–2 days, and the average caesarean section postnatal stay is 3–4 days. During this time, the mother is monitored for bleeding, bowel and bladder function, and baby care. The infant’s health is also monitored.

Physical Adjustments:

- (a) **Involution** – Process by which the uterus returns to its pre-pregnancy size 5–6 weeks after birth. Nursing helps to contract the uterus at a fast rate.
- (b) Sudden and dramatic hormone production changes; if not nursing, will mense 4–8 weeks after birth. If nursing, menses are delayed (but one still can conceive).
- (c) On average, no sexual intercourse for 6 weeks (for many, it is a lot longer).

The mother is assessed for tears, and is sutured if necessary. Also, she may suffer from constipation or hemorrhoids, both of which would be managed. The bladder is also assessed for infection, retention, and any problems in the muscles.

The major focus of postpartum care is ensuring that the mother is healthy and capable of taking care of her newborn, equipped with all the information she needs about breastfeeding, reproductive health and contraception, and the imminent life adjustment.

Some medical conditions may occur in the postpartum period, such as Sheehan’s syndrome and peripartum cardiomyopathy.

In some cases, this adjustment is not made easily, and women may suffer from postpartum depression, posttraumatic stress disorder or even puerperal psychosis.

Postpartum urinary incontinence is experienced by 23.4 per cent to 38.4 per cent, likely higher during pregnancy.

Emotional and Psychological Adjustment

Due to all the changes involved with a newborn, many women experience anxiety, depression, and/or difficulty coping with stress. Postpartum depression affects as many as 70 per cent of women; less often long-term with working mother who return to work.

Early detection and adequate treatment is required. Approximately 25 – 85 per cent of postpartum women will experience the ‘blues’ for a few days. Between 7 per cent and 17 per cent may experience clinical depression, with a higher risk among those women with a history of clinical depression. Rarely, in 1 in 1,000 cases, women experience a psychotic episode, again with a higher risk among those women with pre-existing mental illness. Despite the wide spread myth of hormonal involvement, repeated studies have not linked hormonal changes with postpartum psychological symptoms. Rather, these are symptoms of a pre-existing mental illness, exacerbated by fatigue, changes in schedule and other common parenting stressors.

Postpartum psychosis (also known as puerperal psychosis), is a more severe form of mental illness than postpartum depression, with an incidence of approximately 0.2 per cent.

Psychological adjustments are also delayed in terms of:

- (a) Mother’s time; newborns are extremely demanding
- (b) Mother’s lifestyle changes; activities revolve around child
- (c) Budget changes
- (d) Network of friends may change.

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Check Your Progress

1. What are the main phases of prenatal development?
2. How long does the foetal period last?
3. When can the sex of the child be made out?
4. When does the foetus sense light?
5. What is a teratogen?
6. List some teratogenic agents.
7. What are the types of teratogens?
8. List the primary reflexes of infants.

4.3 CONSCIOUSNESS STATES OF INFANCY

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Babies appear to be very alert and active at times and rather dull and inactive at other times. When tired, babies tend to be cranky and irritable. These ‘moods’ keep changing in the first month. There is no set pattern.

Six states of consciousness have been recognized. Each baby goes through these many times during the day. Two states happen when the baby is asleep and the other states when they are awake.

- **State of deep sleep:** This is when the baby is quiet and immobile and quite unresponsive. Even loud noises may not disturb the baby because it is sound asleep.
- **State of light sleep:** During this state of light sleep, a loud noise may make the baby start or awaken it. During this state, the movement of the baby’s eyes under the closed eyelid is visible. Within an hour the baby will keep switching from one state to the other several times.
- **State of awakening:** As the baby awakens or begins to fall asleep, it will go through the third state. The baby’s eyes will roll back under the eyelids. The baby will yawn, stretch, or even jerk its arms and legs.
- **Wide awake:** In the fourth state, the baby will be wide awake, alert but not very active. It will be relatively motionless.
- **Alert and active:** Once the baby is awake, it can go straight to the 5th state and be happy, alert and very active.
- **Crying state:** This is the third state that the baby may go through once it is awake—the state when it is crying and flailing her arms.

With the rapid development of the baby’s nervous system, it will start following a pattern of smiling, crying, sleeping, eating, and playing — unpredictable at first but rather predictable later. The baby will need to be fed every three to four hours, but by the time it is a month old, it will be active and awake for longer periods during the day. During this period it will be very alert and responsive.

Check Your Progress

9. What does the baby do in a state of deep sleep?
10. How do we know that the baby is sleeping lightly?
11. What is the embryonic period?

4.4 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. In the nine months in which a single-celled zygote transforms into a fully formed foetus consisting of about a trillion cells, the three distinct phases of development are:
 - (i) Germinal stage
 - (ii) Embryonic stage
 - (iii) Foetal stage
2. The foetal period lasts from the third to the ninth month of pregnancy. From 9 weeks to birth (30 weeks)
3. During the third month of pregnancy, the difference between sexes is visible. By the fourth month, the foetus begins to look much more human.
4. In the 26th week, the foetus is able to sense light.
5. It is an agent that leads to abnormality as a result of the exposure of foetus during pregnancy.
6. Teratogenic agents include infectious agents, such as rubella, cytomegalovirus, varicella, herpes simplex, toxoplasma, syphilis, and so on.
7. The types of teratogens are disease, drugs and environment.
8. There are four primary reflexes, which vanish in three to four months:
 1. **Sucking reflex** – aids with nutrition before associations are learned
 2. **Rooting reflex** – touch cheek; will turn towards touch to suck
 3. **Moro reflex** – startle response to intense or quick movements; stretches out all limbs; alerts parent infant is uncomfortable
 4. **Grasping reflex** – touch infant’s palm and it will grasp finger; aids in attachment
9. In a state of deep sleep, the baby is quiet, unresponsive and immobile.
10. The baby is in light sleep state if it is visibly disturbed by loud noise and its eyes can be seen moving under its closed eyelids.
11. It is the period from fertilisation to the beginning of the third month. It is during this period that the foetus develops a circulatory system.

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4.5 SUMMARY

- The first two weeks of development from the time of conception through the development of the cluster of cells known as the embryo, is called the germinal stage.
- The embryonic period lasts from fertilisation to the beginning of the third month.
- The foetal period lasts from the third to the ninth month of pregnancy. From 9 weeks to birth (30 weeks).
- During the third month of pregnancy, the difference between sexes is visible.
- A teratogen is any agent that causes an abnormality following foetal exposure during pregnancy.
- Teratogens are usually discovered after an increased prevalence of a particular birth defect.
- The types or severity of abnormalities caused by a teratogenic agent is also dependent on the genetic susceptibilities carried by the mother and foetus.
- There are disease teratogens, drug teratogens and environment teratogens.
- Perinatal hazards can be caused by forceps, oxygen deprivation, long contractions, infection and trauma.
- Postnatal is the period beginning immediately after the birth of a child and extending for about six weeks.
- Upon its entry to the air-breathing world, without the nutrition and oxygenation from the umbilical cord, the newborn must begin to adjust to life outside the uterus.

4.6 KEY WORDS

- **Implantation:** The action of implanting or state of being implanted.
- **Morphogenesis:** The origin and development of morphological characteristics.
- **Cell:** The smallest structural and functional unit of an organism, which is typically microscopic and consists of cytoplasm and a nucleus enclosed in a membrane.

- **Shunt:** An act of pushing or shoving something.
- **Nausea:** A feeling of sickness with an inclination to vomit.
- **Fatigue:** Extreme tiredness resulting from mental or physical exertion or illness.
- **Amniotic fluid:** The fluid surrounding a fetus within the amnion.
- **Placenta:** A flattened circular organ in the uterus of pregnant eutherian mammals, nourishing and maintaining the fetus through the umbilical cord.
- **Foetus:** An unborn or unhatched offspring of a mammal, in particular an unborn human more than eight weeks after conception.

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4.7 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short-Answer Questions

1. What is the germinal stage?
2. What is the embryonic period?
3. What is the foetal period?
4. What does prenatal care involve?

Long-Answer Questions

1. Describe the stages of prenatal development.
2. Discuss the breakdown of the pregnancy period, month by month.
3. What are the influence son prenatal development?
4. Write a note on teratogens and their role in development.

4.8 FURTHER READINGS

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BLOCK - II

APPROACHES IN HUMAN DEVELOPMENT

*Physical and Motor
Development*

**UNIT 5 PHYSICAL AND MOTOR
DEVELOPMENT**

NOTES

Structure

- 5.0 Introduction
- 5.1 Objectives
- 5.2 Cognitive and Language Development
 - 5.2.1 Mental or Intellectual Development
 - 5.2.2 Theories of Cognitive Development
 - 5.2.3 Language Acquisition
- 5.3 Psychological Development: Emotions, Attachment and Temperament
- 5.4 Answers to Check Your Progress Questions
- 5.5 Summary
- 5.6 Key Words
- 5.7 Self Assessment Questions and Exercises
- 5.8 Further Readings

5.0 INTRODUCTION

Cognitive development refers to the construction of thought processes—including remembering, problem solving, and decision-making—right from childhood through adolescence to adulthood.

While in the past it was thought that babies did not possess the ability to think or form ideas; that they could only start doing so after they learned a language. However, now it is believed that infants become aware of everything around them and are curious to explore from the moment they are born. They start learning actively from the moment they are born. They not only collect information but also sort through it and process it to develop perception and thinking skills.

The most popular and influential theory of cognitive development is that of French psychologist Jean Piaget (1896–1980), whose theory was first published in 1952. His theory resulted from years of extensive observation of children, including his own, in their natural environments as opposed to the laboratory experiments of the behaviourists.

In this unit, you will learn about cognitive and language development and the role of Piaget's theory. You will learn about the factors affecting intellectual development as well as psychological development covering emotions, attachment and temperament.

*Self-Instructional
Material*

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5.1 OBJECTIVES

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

- Define cognitive development
- Discuss cognitive development in children
- Explain various theories of cognitive development with special emphasis on Piaget's theory
- State the factors affecting intellectual development
- State the theories of language development
- Discuss psychological development, with focus on emotions, attachment and temperament

5.2 COGNITIVE AND LANGUAGE DEVELOPMENT

All individuals grow through the multifarious processes of mental development in their lifetime. Mental development implies the progressive changes in the mental process which go on from birth to death. It includes various aspects such as the development of concepts, perception, language, memory, reasoning, thinking, imagination and intelligence. Moreover, various dimensions of mental development are interrelated. Therefore, the mental development of the child includes the overall development of various abilities. In the process of mental development of an individual, the early cognitive developments that a human child goes through are crucial to his mental development.

Cognitive development refers to the development of the ability to think and reason. It focuses on a child's development in terms of information processing, conceptual resources, perceptual skill, language learning, and other aspects of brain development. Thus, the study of developmental psychology must begin with the understanding of the early cognitive foundations that all human beings go through. In this regard, the lesson first covers the various aspects of mental development or cognition, and then goes on to discuss the first comprehensive study about the nature and development of human intelligence—Jean Piaget's Theory of Cognitive Development. Then finally, we look at how language is acquired by human beings.

5.2.1 Mental or Intellectual Development

Mental development or intellectual development is the development of the mental abilities and capacities which help an individual to adjust his behaviour to the ever changing environmental conditions or to enable him to accomplish a task that

needs complex cognitive abilities. According to Bruner (1964), 'Intellectual development is the capacity to deal with several choices at the same time.'

Various Aspects/Areas of Mental Development

Intelligence and mental development: In the first place mental development implies increase in intelligence. The results of intelligence tests show that mental or intellectual growth is rapid in infancy, moderate in childhood and slow in youth.

Sensation and perception: Both sensation and perception are considered important aspects of mental development. Senses are the elementary impressions gathered by sense organs. Impressions take the form of perception when they are interpreted and some definite meanings are attached to them.

Through experience, child's sensations become perceptions and he is able to give meaning to it. Child's sensory equipment becomes mature at the age of five. He shows a great interest in seeing, hearing, touching, smelling and tasting. However, a child's sensations do not automatically assume meaning. During his early childhood, a child is more likely to misrepresent things and objects because of lack of experience. For example, when viewed from a distance, a train may appear to a child as a toy train. But gradually a child's perceptions become more and more accurate through the right kinds of experiences. By the time a child enters school, he has gained enough experience. Yet he needs assistance and guidance to improve his ability to perceive by having first hand experiences and observations of objects, persons and situations around him. Gradually he develops a proper perception of space, time, form, movement and distance.

Perception patterns become more organized and refined when an individual reaches his adolescence. At adolescence, perception patterns tend to become more definite, detailed and rich. Now they need not be associated necessarily with objects. They are beginning to be influenced by an individual's beliefs, ideals, opinions, etc.

Concept formation: Another important aspect of the child's mental development is the acquisition of concept. A concept is the generalized meaning that is attached to an object or idea. It is the result of one's perceptual experiences. It involves both discrimination and generalization.

Discrimination begins sometimes after the child tries to generalize his perceptual experiences. Thus he begins to acquire concepts. Experience is an important factor in concept formation. In early childhood, a child tries to develop various concepts from the concrete experiences in the form of actual objects.

Normally, concept formation proceeds from concrete to abstract, from vague to clear and from inexact to exact, depending on the type of experiences a child receives. The child has a very poor concept of time. As stated by Crow and Crow, 'Time as such means little to the young child. He cannot distinguish among

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‘today’, ‘tomorrow’, and ‘next week’ except as they represent words rather than actual duration of time.’

In later years, various experiences provided by reading, lecturing and motives, etc., help in concept formation.

Generally, concepts may be broadened, and developed. They may even take a new shape. Wrong concepts can be altogether abandoned.

Gradually as a result of learning and maturation, child’s concepts become clear, definite and specific.

Development of language: The development of language contributes to the mental growth and development of the child. Important aspects of language development are speech, vocabulary and length of responses, etc.

Development of memory: Memory is also an important element of mental development. There is little memory at birth but it gradually increases with maturation and experience. According to Hurlock and Schwartz (1932), ‘Memory of an impressionistic kind appears in the first half of the year and instances of the true remembrance appear by the end of first year. During the first year memory is only aroused by sensory stimuli. With the learning of speech the child is able to remember ideationally by the end of the second year. During the first and second years the memory is stronger for persons and objects than for situation. In pre-childhood from 3 to 6 years, situations become significant factors in the child memory. The emotional quality of the impressions also influences memory. By age 3, the child can recount the story heard a few days ago and he can also give information about past experiences.’

A child has a good memory in the earlier stages but this memory is generally a rote memory. His memorization is without reasoning. He seldom uses logic and insight in memorization. A child can cram and reproduce the matter easily. The memory tends to function more logically during later childhood and adolescence. A selection process of remembering and forgetting begins to operate. After that memory tends to decrease.

Memory depends upon person to person. It is generally affected by health and situation of the child. The stimuli which are associated with a kind of memory influence significantly, its remembrance or forgetting.

Creativity: It may be stressed that creativity is the most single ability which is at the root of human progress. Like many other activities, it can be developed at a young age. In a general sense, creativity is the ability to think in novel ways which result in some new and original solution.

Problem solving: All thinking and reasoning involve meeting difficulties, facing complex situations and finding out solutions. An individual is beset with all these since childhood. Thinking and reasoning powers are used in problem solving and

these begin to grow as early as two and a half or three years of age. Gradually the ability to reason grows.

Stages of Mental Development

The various stages of mental development are given below:

1. **Period of infancy: the beginning of awareness:** In the beginning mental activity consists of awareness of oneself. Later on, this awareness extends to the environment. The nervous system begins to grow during the prenatal period. As the nervous system keeps on growing before and after birth, the process of mental development also goes on accordingly.
2. **Mental development before the age of three:** During these years, the process of mental development is much faster. Important characteristics of this stage are:
 - (i) Curiosity
 - (ii) Rote memory
 - (iii) Creativity
 - (iv) Time concept not yet developed
 - (v) Very little development of powers of observation, perception and concentration, etc.
3. **Period of pre-school age:** During the ages of two and a half or three to six, the mental abilities of the child develop very rapidly. His perceptual powers increase and his curiosity is aroused to a great extent.
4. **Childhood and before adolescence:** During this period, the sensory powers increase rapidly and the child becomes more accurate in his observations. From a make-believe type of imagination, he now starts thinking on creative lines. During this period, the likes and dislikes of the child, his interests, thoughts and plans begin to shape themselves. His power of deductive and inductive reasoning increases and he is able to generalize from the data given to him. He develops the concepts of length, time and distance and tends to express himself in various ways.
5. **Mental development during adolescence:** The most crucial and significant period of an individual's life. It is the period of rapid changes in the individual's physical, mental, moral and social outlook.
6. **Mental development during early adulthood:** The most important mental abilities needed for learning and for adjustment to new situations, such as recall, reasoning and creative thinking reach their peak during the twenties and men begin a slow and gradual decline.
7. **Mental development and middle ages:** Studies conducted by Terman and Oden (1959) on a group of individuals followed from pre-school years

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to middle life have shown that mental decline does not set in during middle ages among those with high intellectual abilities.

8. **Mental development during old age:** Old people take more time to integrate their responses. They tend to lack the capacity for or interest in creative thinking. Old people tend to have poor recent memories but better remote memories. There is slight deterioration in vocabulary. The mental rigidity that sometimes sets in during middle age often becomes more pronounced as the person grows older.

9. **Cessation of mental growth:** Psychologists have tried to give various ages ranging from thirteen to the early twenties or even much later as the age after which there is no further mental growth. Sorenson (1945) has tried to analyse the age of cessation of mental growth. He writes that it is probably safe to conclude that a person reaches his maximum mental level at about the age of twenty or perhaps a little before or a little after twenty. It is true that on the average there is only a little mental growth during the late teens, nevertheless, this small amount may be very important.

Concluding observations: It may be remembered that all the changes in mental development do not occur all of a sudden nor do they strictly conform to a specific stage. The changes that are mentioned here are no doubt signs of increasing maturity but no distinct stages in mental development are noticeable. An individual or the child does not pass from the stage immediate and concrete to the stage of the remote or the abstract, at a particular level of his development. The process of maturity continues throughout all stages of development. At the same time it must be kept in view that there are certain behaviour patterns and certain development trends which are absent at one stage but are visible in the next stage or still in another higher stage.

Factors Affecting Intellectual Development

1. **Heredity:** Intellectual development of an individual is greatly affected by the interaction between inherited intelligence and the individual's experience.
2. **Physical growth:** There is a strong relation between physical growth and intellectual development. A healthy person is likely to have a better intelligence than a person who has a poor physique.
3. **Physical environment:** Physical environment like fresh air, sufficient light and ample space has a great bearing on intellectual development.
4. **Family environment:** The kind of discussions held in the family, the type of reading material like books and magazines read by the family affect the intellectual development.
5. **Socio-economic status of the family:** Parents of high socio-economic group have better access to send their children to good schools.

6. **School environment:** The methods of teaching, availability of good reading material in the library, attitudes of teachers and school discipline, etc. affect intellectual development.

It is concluded that intellectual development is the result of a large number of factors. It is not an automatic process. It is a gradual and painstaking process.

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Environmental Influences on Child's Development

1. The prenatal environment
 - The chemical balance of the mother's body and the presence of conditions or potentially toxic substances that can alter development processes. Examples are the mother's use of drugs or alcohol, viral or bacterial diseases, and direct traumatic injury to the foetus
2. The physical environment
 - The air the child breathes, the nutritional value of food the child eats
 - Exposure to conditions that can lead to disease, accident, or injury, including child abuse and neglect
3. The social/cultural environment
 - Includes the norms, values, belief systems and morals among which the child is raised
 - Standards of behavior that regulate life in the cultural group in which the child is raised
4. The learning environment
 - The degree and type of stimulation available in the child's immediate environment
 - Sensory input promotes and shapes cognitive development
 - Stimulation, in adequate quantity and intensity, promotes establishment of, and 'shapes', neural pathways in the brain
5. The emotional environment
 - The nature of the child's interpersonal relationships
 - The degree of nurturance available to the child
 - The emotional environment shapes personality and affects the development of self-esteem, identity, trust, the ability to enter into intimate relationships, and personal resilience

5.2.2 Theories of Cognitive Development

Jean Piaget (1896-1980) is regarded as one of the pioneers in psychological investigation of children, although he neither undertook formal study nor passed any examination in psychology. He was a biologist by training. At the age of 22, he

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obtained his Doctorate Degree in Zoology on Mollusks of Valias. He worked on child development for more than 50 years and produced enormous literature on developmental psychology. He read philosophy, psychology and sociology, etc. He pursued clinical research at the Alfred Binet Laboratory at Paris. By observing and working with children, he developed his educational theory regarding cognitive development or learning by children. His work as a Professor of child psychology at the University of Geneva (Switzerland) made him famous throughout the world.

Jean Piaget's Theory of Cognitive Development

Basic Concepts of Piaget's Theory

Piaget introduced four concepts in the building of his theory. They are as follows:

- (i) Schemas
 - (ii) Assimilation
 - (iii) Accommodation
 - (iv) Equilibration
- (i) **Schemas (Cognitive structures):** Piaget called 'schemas' as cognitive structures or the patterns of behaviour that children and adults use in dealing with objects in their environment. These patterns can be simple as well as complex. As the development proceeds, each pattern enlarges and changes. It is coordinated with other patterns to form more complex patterns. The infant sucks the breast of his mother, he looks at the objects of his environment, listens to different voices in his environment and finally he tries to comprehend, conceptualize the articles, animals, space and many other behaviour patterns or structures.
- (ii) **Assimilation:** Assimilation implies incorporation of something from the environment. New ideas, concepts and stimuli are taken in and incorporated into one's existing set of schema. A scheme is the organized pattern of behaviour which the child develops when he is engaged in any activity. For example, when a child is engaged in sucking, there is a certain pattern of movements of the cheeks, lips and hands. When a child is confronted with a new object, he will try to understand the new object by applying his old schema to it. He grasps and adapts himself to a new object by assimilating it. His old schema does not change in the process.
- (iii) **Accommodation:** Accommodation involves modification or change of some elements of an old schema or learning new schema which is more appropriate for the new object. A baby who has already got a schema of sucking mother's breast accommodates to the object placed in the mouth — finger, nipple, pencil, a toy—depending on its shape, form and the size. The baby develops a new schema or a modified schema. This is called accommodation.

Thus a baby assimilates when he understands and perceives the new in the light of his old perceptions. A baby forms a new schema and modifies or changes his old perception to suit the new. This implies adjusting or accommodating. In this way a baby forms new structures or new schemes, and consequently develops cognitivity.

- (iv) **Equilibration:** The structures or the schemes change from one stage to another by the process of equilibration—maintaining balance between the child and his changing environment. According to Piaget, when by the existing scheme, the new situation is not fully handled, then a state of disequilibrium or an imbalance between what is understood and what is encountered is created. In such a case, the individual tries to reduce such imbalances. This is done by him by focusing his attention on the stimuli that has caused the disequilibrium and by developing new schemas or adapting old ones until equilibrium is restored. This process of restoring balance is called equilibration. Piaget believes that learning depends on this process.

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Stages of Cognitive Development

Jean Piaget divided the stages of cognitive development into the following categories:

1. *The period of sensorimotor adaptation (since birth to 2 years).* The period from birth to two years is marked by an extraordinary development of the mind. The infant starts from reflex domination and reaches the stage of sensorimotor schemas in a means to end a relationship. The development of this period is very important for future life.

The intellectual development at this age is marked by four fundamental characteristics: (a) Object concept formation, (b) Coordinated space, (c) Objectified causality, and (d) Objectification of time.

The objects exist in the psychological world of an adult irrespective of their physical presence before the adult but in the world of the child they only exist when they are physically present and the child looks at them, grasps them and acts with them. As soon as they move out of his range of acting, grasping and listening, they stop existing for the child. In the first year of life, the child develops the concept of permanence of objects. He then attempts to retrieve an object that disappears from his range of action. When the child acquires the scheme of object permanence, he is likely to exercise it at every opportunity; he will drop objects of his play and then try to find out them.

The second characteristic of coordinated space is integrated with the formation of the object concept. The spatial world at first is totally uncoordinated. Each sensory modality has its own space and is centred on the child's current activities. By the end of two years, the child develops the

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concept which is characterized by relationship among objects and between objects and his own body.

The concept of causality depends on the activity of the child. Any action of the child which brings about an effect is taken as the cause of that event. The child, by a number of activities, develops the concept of causality by the end of two years of age.

The infant does not have any real sense of duration at the beginning of life. By the middle of first year of life, a rudimentary sense of duration is present, but it is entirely a subjective phenomenon. By the end of the first year, the infant frees himself from this personal concept of time and the beginning of objective existence of time takes place. The infant can establish temporal relations between events in which he does not directly participate. Appearance of representations during his second year of life gives a considerable boost to the time concept. The infant can now recall events of long ago as well as those that occurred in the immediate past. Time is conceived as a dimension in which events occur, not just as a by-product of behaviour.

2. *The development of symbolic and pre-conceptual thought (2 to 4 years).* At the end of the sensorimotor period, the child starts dealing with the world by means of ideational representations. By imitation and other forms of behaviour, he demonstrates that he is capable of extending his world beyond here and now. These actions of the child indicate the use of symbols. By the age of 4 years the child develops way of representing the environment in the absence of perceptual cues and will build a set of symbolic schemes.
3. *The period of intuitive thought (4 to 8 years).* At this stage, the child is able to use concepts as stable generalization of his past and present experiences. His reasoning is not logical and is based on intuition rather than on systematic logic. The intuitive thought of the child is mainly concerned with stages or static configurations and neglects transformation. The child talks about this or that momentary static conditions but he cannot adequately link a whole set of successive conditions into an integrated totality by taking into account the transformations which unify them and render them logically coherent.
4. *The period of concrete operations (8 to 12 years).* Concrete operation means that stage of cognitive development when the child is able to direct his attention away from the static conditions and can focus on the whole set of successive changes that occur in the process of transformation. At this stage the child can reason well. Transformation could return to its starting point. Piaget has given a long list of operations which make possible the handling of numbers in various relations to each other, the arrangement of

objects into classes and sub-classes and the ordering of objects according to one or more attributes. He has coined a term 'grouping' to describe a set of operations.

The starting point of concrete operations is always the real rather than potential. The child of 7–11 years acts as though the primary task were to organize and order what is immediately present. During the period of concrete operations, there are some logical inconsistencies in the child's thinking. Piaget calls this inefficiency 'Syncretism'.

5. *The period of formal operations (from 12 years to adolescence)*. At this stage the child's thought process becomes quite systematic and reasonably well-integrated. These qualities of the child's thought process are evident when events are present. Reality guides his contemplation of possibility. He starts a form of hypothetico-deductive reasoning. The use of formal operations is what is called the controlling aspects of comprehending.

The child at this stage in his formal thinking can free himself of the here and now in a lawful and systematic way. His wisdom lies in the masterful administration of the unforeseen. When an adolescent is faced with a problem, he uses formal operations to identify the variables that seem relevant to the solutions, and then considers all the possible combinations of these variables.

The formal thought of adolescent is of propositional nature. The adolescent using formal operations views the concrete data as inducing a set of propositions and he then applies operations to these propositions which are themselves primary operations. Formal thinking is thus inter-propositional and inter-operational and entails working out propositions on propositions or applying second-order operations to primary ones.

The development of formal operations enables the adolescent to transfer understanding from one situation to another.

The adolescent shows a particular orientation to problem solving. He analyses and organizes his approach before attempting a specific empirical test.

The hallmark of formal operations period is the development of the ability to think in symbolic terms and comprehend content meaningfully without requiring physical objects or even visual or other imagery based on past experience with such objects. Formal operations are the logical and mathematical concepts which are used in advanced conceptualization and reasoning, etc. that is difficult to represent concretely.

Piaget's Views on the Various Aspects of Learning

1. **Meaning of learning:** Learning includes the wide range of activities. Rigid distinctions like classroom for instruction, laboratory for practicals, recess

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for amusement, mathematics for developing computational ability, athletics for strengthening the body muscles, etc., are unnecessary. Piaget's approach helps to tie together what have been treated as separate subjects.

2. **Role of learner's actions:** Action stresses the role of active exploration. A child is active when he stares at objects. A child is active when he stares at an organism. A child is active when he studies his body parts. A child is active when he lifts something. A child is active when he carries things. A child is active when he arranges things. Children are usually active for most of their time. There is no doubt that some of these activities may be rather aimless or unnecessary. However, most of these activities are purposeful.
3. **Role of practice:** An important part of Piagetian model is repetition of an act by a child. The role of practice varies with development. Concepts are the products of a long history of action. A child may take three or more days to complete a puzzle. Each day he appears to go through the same sequence. A child's actions upon the environment are repeated again and again with slight modifications each time. Piaget depicts the child as somewhat slower and methodical and systematic in acquisition of new ideas.
4. **Motivation:** According to Piaget, a learner desires to reduce his internal conflicts by keeping his thoughts harmonious and in equilibrium. It is only through playing, imitating, exploring and questioning that a child gradually comes to distinguish the achievable from non-achievable, and logical from the illogical. To Piaget, the progress towards this end is inherent, a property of cognitive style as are eating, drinking and breathing in the physiological field.
5. **Memory:** Memory is a symbolic representation of how the child has schematized what he sees. Experiments conducted by Piaget reveal that after six months, 61 per cent of the children from 4-8 years of age regressed in their memory ability if tested by recall or evocation.

A reconstruction test involving the child with some material showed regression in 4-5 years old but 48 per cent progression among 6-7 years old. Piaget holds that recognition is perceptual and reconstruction is internalized imitation. Each experiment reveals that the pattern of accuracy, improvement and regression (Gradual loss of memory) is determined by initial conceptual understanding and is altered by new understandings.

6. **Interest:** According to Piaget, the interest of the child at any given movement depends upon the system of ideas he has acquired plus his affective perception. A child tends to fulfil his interests in the direction of greater equilibrium. According to Piaget, Equilibrium is development and the ability to think in a logical and natural manner.

General Educational Implications of Piaget's Cognitive Theory of Development

- (i) It provides a broad development perspective to the educator for building a curriculum for the children.
- (ii) The description of developmental stages and qualitative aspects of intellectual growth is very useful in providing suitable educational practices.
- (iii) The cognitive theory states that the child is to be actively involved in the teaching-learning process for his intellectual growth.
- (iv) Piaget-based curriculum requires that children should not skip any stage.
- (v) The pre-school child is at the pre-operational level. The educational program at this stage should provide concrete operations.
- (vi) An educational programme should enable the child to integrate the information.
- (vii) A child should be helped to develop internal consistency of the system.
- (viii) Most of the activities of the Piaget type require simple equipment and material.
- (ix) Drilling in skills is to be avoided.
- (x) Teaching learning situation should be geared to a point where the child is neither too familiar nor too unfamiliar with the objects and ideas.
- (xi) Variety of cognitive activities like storytelling, rhymes, singing, etc., are included in the programme in a systematic manner. There is a deliberate attention of developing cognitive growth.
- (xii) A child's development is retarded if he is not allowed a fairly wide sensory and motor experience in his early years.
- (xiii) Real events and concrete objects play an important role in learning.
- (xiv) In science and mathematics, learning from physical environment is more important than what is learnt from people, books or television.
- (xv) A teacher should arouse curiosity of the child through planned activities.
- (xvi) Children like to find out by themselves by their own spontaneous activity.
- (xvii) Children learn speedily if we provide concrete material to them.

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Criticism of Piaget's Theory of Development

Several psychologists do not agree with Piaget's theory of cognitive development. According to Gagne (1968), stages described by Piaget are not necessarily the inevitable result of an inborn time-table. Instead they are a consequence of children having learned sets of rules that are progressively more complex and these rules

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are taught by their physical and social environment. Gagne thinks that Piaget was indifferent to the role of learning in developmental changes.

Some psychologists do not agree with the view of Piaget that infants are born with some elementary mental structures that are starting points for their attempts to deal with their environment.

Piaget's views are not new to educational thought. What is new is that they have been stated in the context of the classroom situations. Instruction in the classroom would serve the function of setting into motion the processes of assimilation and accommodation for a particular area of exploration.

Vygotsky's Socio-cultural Theory

Vygotsky (1962) believed that children are active seekers of knowledge, but emphasized that rich social and cultural contexts profoundly affect their thinking. The main points of Vygotsky's theory were:

- Rapid growth of language leads to profound change in thinking.
- It broadens pre-schoolers' participation in social dialogues with more knowledgeable individuals, who encourage them to master culturally important tasks.
- Young children start to communicate with themselves in the same way as they converse with others.

Hence, basic mental capacities are transformed into uniquely human, higher cognitive processes.

5.2.3 Language Acquisition

A major feature that distinguishes human beings from animals is their ability to use vocal speech as a means of communication. Sometimes the words 'speech' and 'communication' are used as if they mean the same thing. Speech is the most important form of communication. Communication has these forms:

- Speech
- Facial and bodily movements that show different emotions
- Touch
- Sign language used by the deaf
- Arts such as music, dance and painting
- Written symbols of words

Broadly speaking the tools of communication may be categorized under two heads—signs and symbols. Symbols are unique to human beings. Language permits the communication of information from one generation to the other.

Language makes available the wisdom as well as the errors of the past to the present generation.

Broadly speaking language performs the following functions:

1. Language helps to communicate ideas to others
2. Language helps in the formation of concepts
3. Language helps in the analysis of complex wholes
4. Language helps us to focus attention on ideas which would otherwise be difficult to keep in mind

A psychologist takes interest in the structure of a language because in it he finds some aspects of human structure of thinking.

Sequence of language development: The sounds, words and sentences are the stages in language development. The first cry or sound uttered by a child is its cry of birth. Crying, babbling and gestures are all important forms of pre-speech communication. The mother starts talking to the child right from the moment of birth. She converses when she changes the clothes of the infant. She converses when she feeds the infant. She converses when she bathes him. In this way, the sound making behaviour is reinforced. It is pleasant for the parents to listen the sounds made by the infant. It becomes a rewarding experience for the child.

Crow and Crow (1962) pointed out the sequential steps of progress in language development:

1. Feeble gestures and sounds
2. Babbling
3. Use of simple spoken vocabulary
4. One word sentence
5. Combination of words into sentences
6. Development of skill in reading
7. Improved mastery of the tools of communication

Gessel and Thompson (1934) reported about language growth that most babies observe cooings when they are twelve to sixteen weeks old. They are able to combine some vowels and consonants and repeat them in succession when they are five to six months old. They can speak one word or more when they are one year old.

Lynip (1951) recorded voice samples of an infant for fifty six weeks beginning with its birth cry. With a sound spectrograph, he analysed these records and noted that the infant did not produce a single vowel or consonant sound comparable to adult vowels or consonants until about the age of one year. Thorndike and Lorge (1944) spent a number of years in counting the words which were used in popular

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magazines and children's books, etc. in America. It was found that the word 'I' was used most often.

Development and Levels of Language

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Language use has two aspects- production and comprehension. In the production of language, we start with a thought, somehow translate it into a sentence, and end up with sounds that express the sentence. In the comprehension of language, we start by hearing sounds, attach meanings to the sounds in the form of words, combine the words to create a sentence, and then somehow extract meaning from it. Language use seems to involve moving through various levels. At the highest level are sentence units, including sentences and phrases. The next level is that of words and parts of words that carry meaning (the prefix or the suffixes, for example). The lowest level contains speech sounds; the adjacent levels are closely related. The phrases of a sentence are built from words and prefixes and suffixes, which in turn are constructed from speech sounds. Language is therefore a multilevel system for relating thoughts to speech by means of word and sentence units (Chomsky, 1975). The following are the levels of language:

Speech sounds: We do not perceive the person's speech as a continuous stream of sound but rather as a sequence of phonemes, or discrete speech categories. For example, the sound corresponding to the first letter in 'boy' is an instance of a phoneme symbolized as 'b'. Every language has a different set of phonemes. When phonemes are combined in the right way, we perceive them as words. Each language has its own rules about which phonemes can follow others.

Word units: Unlike phonemes, words carry meaning. However, they are not the only small linguistic units that convey meaning. Suffixes such as 'ly' or prefixes such as 'un' also carry meaning. They can be added to words to form more complex words with different meanings. The term morpheme is used to refer to any small linguistic unit that carries meaning. The most important aspect of a word is its meaning. Some words are ambiguous because they name more than one concept.

Sentence units: As listeners, we usually combine words into sentence units, which include sentences as well as phrases. An important property of these units is that they can correspond to parts of a thought, or proposition. Such correspondences allow a listener to extract propositions from sentences.

Phrases and syntax: Analysing a sentence into nouns and verb phrases, and then dividing these phrases into smaller units like nouns, adjectives, and verbs, is syntactic analysis. Syntax deals with the relationships between words in phrases and sentences. Syntax primarily serves to structure the parts of a sentence.

Roots of Language and its Use

Development occurs at all three levels of language. It starts at the level of phonemes, proceeds to the level of words and other morphemes, and then moves on to the level of sentence units, or syntax.

Phonemes and Combinations of Phonemes

Although children learn which phonemes are relevant during their first year of life, it takes several years for them to learn how phonemes can be combined to form words. When children first begin to talk, they occasionally produce difficult words like *dumber* for *lumber*. By age four, however, children have learned most of what they need to know about phoneme combinations.

Words and Concepts

When they are a year old, children begin to speak. One-year-olds already have concepts for many things (including family members, household pets, food, toys, and body parts), and when they begin to speak, they are mapping these concepts onto words that adults use. The beginning vocabulary is roughly the same for all children. Children who are 1 to 2 years old talk mainly about people (*dada*, *mama*, *baby*, etc.). Thereafter, the child's vocabulary development virtually explodes. At a year and a half, a child might have a vocabulary of twenty-five words, at six years, the child's vocabulary grows; children have to learn new words at the rate of almost ten per day (Miller and Gildea, 1987). Children seem to be attuned to learning new words.

From Primitive to Complex Sentences

Between the ages of a year and a half and two and a half years, the acquisition of phrase and sentence units, or syntax begins. Children start to combine single words into two-word utterances. Children progress rapidly from two-word utterances to more complex sentences that express propositions more precisely.

Learning Process

Innate factors must also play a role. That is why children raised in English-speaking households learn English where as children raised in French-speaking households learn French.

Imitation and Conditioning

One possibility is that children learn language by imitating adults. Although imitation plays some role in the learning of words (a parent points to a telephone says, 'phone' and the child tries to repeat the word), it cannot be the principal means by which children learn to produce and understand sentences. A second possibility is that children acquire language through conditioning. Adults may reward children when they produce a grammatical sentence and correct them when children make mistakes. For this to work, parents would have to respond to every detail in a

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child's speech. However, Brown, Cazden, and Bellugi (1969) found that parents do not pay attention to how the child says something, as long as the statement is comprehensible. Also, attempts to correct a child (and, hence, apply conditioning) are often futile.

Hypothesis Testing

The problem with imitation and conditioning is that they focus on specific utterances. However, children often learn something general as a rule. They seem to form a hypothesis about a rule of language, test it, and retain it if it works.

Innate Factors

Some of our knowledge about language is inborn or innate. If our innate knowledge is very rich or detailed, the process of language acquisition should be similar for different languages, even if the opportunities for learning differ among cultures unique to the human species.

The Richness of Innate Knowledge

All children, regardless of their culture and language, seem to go through the same sequence of language development, which is as follows:

- When children are one, they speak a few isolated words
- At about two years of age, they speak two- and three-word sentences
- At three years, sentences become more grammatical
- At four years, the children's speech sounds much like that of an adult

Cultures differ markedly in the opportunities they provide for children to learn from adults. In some cultures, parents are constantly speaking to their children, whereas in others parents verbally ignore their children. The fact is that this sequence is so consistent across cultures which indicate that our innate knowledge about language is very rich. Indeed, our innate knowledge of language seems to be so rich that children can go through the normal course of language acquisition even when there are no language users around them to serve as models or teachers.

Critical periods

More recent research indicates that there is also a critical period for learning syntax. With respect to understanding and producing words with multiple morphemes, such as 'untimely', which consists of the morphemes 'un;', 'time', and 'ly', native signers did better than those who learned ASL when entering school, who in turn did better than those who learned ASL after age twelve (Meier, 1991; Newport, 1990).

Factors Influencing Language Development

Following are the important factors affecting the development of language:

1. Imitation of the language of parents, other adults and teachers
2. Cultural factors

3. Environmental factors
4. Degree of maturity
5. Level of intelligence
6. Physical conditions
7. Number of children in the family
8. Socio-economic status of the family
9. Child's emotional development
10. Teacher's language competence

McCarthy (1920) noted consistent difference in favour of upper social class children in language maturity. Deutsch (1963) found that the home of the lower class child had few objects to provide a variety of stimulation.

Hess and Shipman (1966) taped samples of the mother's language. It was found that middle-class mothers used more complex sentences than used by the low-class mothers.

In India, a study on language development of children was conducted in 1971 by Kuppaswamy. The responses of 480 children studying in Kindergarten, first, third and fifth grades using Kannad were considered. The rural children were found to be definitely inferior to urban children.

The child in the village or in the slum in the urban areas in India has few things to observe and play with. Moreover, he lacks facilities like television, etc. This provides opportunity for the child from the middle-class home to learn more words and have a good vocabulary by the time he goes to school.

Theories of language development

1. The Behaviorist Perspective:

- This perspective considers language development to be entirely a result of environmental influences.
- Through operant conditioning, parents reinforce their baby's sounds that mostly sound like words.
- Imitation combines with reinforcement to promote language development.

2. The Nativist Perspective

This view states that children are born with a biological based system—called the language acquisition device (LAD)—for mastering language.

- Chomsky maintained that the LAD contains a set of rules common to all languages; thus, children speak in a rule-oriented way from the beginning.
- Children all over the world tend to master language milestones in a similar sequence—evidence that fits with Chomsky's ideas.

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3. The Interactionists' Perspective

- This view postulates that the language achievements happen due to the interaction of innate abilities and environmental influences.

Native capacity, a strong desire to interact with others, and a rich linguistic and social environment contribute to promoting a child's language capacities.

Check Your Progress

1. What is cognitive development?
2. What is mental development?
3. What happens to the perception of an individual in adolescence?
4. How is a concept formed?
5. What is creativity?
6. List three characteristics of mental development at the age of three.
7. Name two factors that affect intellectual development.
8. What are two stages of cognitive development as per Jean Piaget?
9. What according to Piaget is the role of learner's action?
10. What are the forms of communication?

5.3 PSYCHOLOGICAL DEVELOPMENT: EMOTIONS, ATTACHMENT AND TEMPERAMENT

From the moment a child is born, the process of adjustment and adaptation between the child and his parents (or in the absence of the parent, whoever the child's caregivers are) and the social environment begins. This process lasts a lifetime.

Relationships established in a child's life in the early stages and the patterns of interaction that the child is exposed to serve as a prototype for later interactions. The effects of these may last a lifetime. Young children do not know the language enough to communicate their needs to their parents or caregivers. So they communicate via what they know best, their behaviour.

Very often, parents are unable to read or comprehend the child's emotions or what the child is feeling. It is quite a challenge to be able to sense what the child wants or needs all the time. All parents desire that their babies should grow up healthy and capable of taking the reins of their lives in their own hands. Today's

parents wish to be aware of the best way to bring up their children, for which they are keen to take tips on parenting. Also, none of these parents want their own family histories to be repeated.

For any relationship to be tight, close and intimate, there has to be some level of attachment. The same applies to the parent-child relationship. Children feel secure and attached if their parents are responsive. Such children are not only more curious but independent and rather self-reliant. They grow up to be efficient and hardy adults. In comparison, those who do not experience a secure attachment with their caregivers may find it challenging to mingle with others and will not easily trust others. Children who are slightly dim or slow do not easily adjust with their parents either. They are overly shy and meek and irritable. As a result, they end up being less accepted or encouraged by parents. This gives them a kind of inferiority complex. They begin to consider themselves worthless. This is when parents should do their bit by becoming more caregiving, so as to help bring about positive changes in the child and instil confidence in the kid. If we recall our relationship with our parents and go over them, we could develop the skills required to provide effective guidance and nurturance.

The emotional connection between the caregiver and child will also cause them to remain physically close to each other, in the early months in particular. Once the baby starts crawling and moving around, its dependence on the caregiver will reduce but not disappear entirely. The child develops a security with regard to the caregiver's ability and presence and musters the courage to explore more and move farther away. This is the irony — while not shrugging away the proximity of the caregiver, the child develops the courage to move away from dependence. This is the foundation of the attachment theory. When a child is very near to its mother, the proximity or closeness starts reducing and the child seeks to be distracted by other activities and things, all the while sure that the caregiver is there as a backup.

Temperament comprises individual differences in emotion, motor activation and attentional reaction to stimuli. Temperament helps to shape children's outcomes and influences the manner in which they interact with their environment and the manner in which adults and children react to them.

Each child has his own unique personality and temperament that he is born with. The temperament of a child impacts the way it behaves and responds to situations. However, if the correct approach is used, parents can alleviate some of the challenges of their child's disposition.

- If parents avoid being overprotective and encourage children to explore new situations, children will be able to get rid of their fears and anxiety.

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- If children are without fear and used to taking risks, parents should express their warmth and love to keep them in check; they should set certain limits and expect the children to adhere to consistent schedules.
- Impulsive children's parents should appreciate good behaviour (instances when they control their impulses) and discipline them gently.

On the whole, children end up developing better temperaments when their parents are supportive and affectionate, set some constraints, use positive discipline, and attend to their needs regularly.

Check Your Progress

11. Why are early interactions between children and parents significant?
12. What is the role of attachment?
13. What is the attachment theory?

5.4 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. Cognitive development refers to the development of the ability to think and reason. It focuses on a child's development in terms of information processing, conceptual resources, perceptual skill, language learning, and other aspects of brain development.
2. Mental development implies increase in intelligence. The results of intelligence tests show that mental or intellectual growth is rapid in infancy, moderate in childhood and slow in youth.
3. At adolescence, perception patterns become more organised, more definite, detailed and rich.
4. A concept is the generalized meaning that is attached to an object or idea. It is the result of one's perceptual experiences. It involves both discrimination and generalization.
5. Creativity is the ability to think in novel ways which result in some new and original solution.
6. Important characteristics of this stage are:
 - (i) Curiosity
 - (ii) Rote memory
 - (iii) Creativity

7. Two factors that affect intellectual development are: heredity and physical growth.
8. Jean Piaget divided the stages of cognitive development into (i) the period of sensorimotor adaptation and (ii) the development of symbolic and pre-conceptual thought.
9. Action stresses the role of active exploration. A child is active when he stares at objects. A child is active when he stares at an organism. A child is active when he studies his body parts. A child is active when he lifts something. A child is active when he carries things.
10. Communication has the following forms: Speech, facial and bodily movements that show different emotions, touch, sign language used by the deaf, and arts such as music, dance and painting and written symbols of words.
11. Relationships established in a child's life in the early stages and the patterns of interaction that the child is exposed to serve as a prototype for later interactions. The effects of these may last a lifetime.
12. For any relationship to be tight, close and intimate, there has to be some level of attachment. The same applies to the parent-child relationship. Children feel secure and attached if their parents are responsive.
13. When a child is very near to its mother, the proximity or closeness starts reducing and the child seeks to be distracted by other activities and things, all the while sure that the caregiver is there as a backup.

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5.5 SUMMARY

- Cognitive development refers to the development of the ability to think and reason.
- Mental development or intellectual development is the development of the mental abilities and capacities which help an individual to adjust his behaviour to the ever changing environmental conditions.
- Through experience, child's sensations become perceptions and he is able to give meaning to it.
- A concept is the generalized meaning that is attached to an object or idea. It is the result of one's perceptual experiences.
- The development of language contributes to the mental growth and development of the child.
- Memory is also an important element of mental development.

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- It may be stressed that creativity is the most single ability which is at the root of human progress.
- All the changes in mental development do not occur all of a sudden nor do they strictly conform to a specific stage.
- Intellectual development of an individual is greatly affected by the interaction between inherited intelligence and the individual's experience.
- John Piaget introduced four concepts in the building of his theory. They are as follows:
 - (i) Schemas
 - (ii) Assimilation
 - (iii) Accommodation
 - (iv) Equilibration
- Some psychologists do not agree with the view of Piaget that infants are born with some elementary mental structures that are starting points for their attempts to deal with their environment.
- A major feature that distinguishes human beings from animals is their ability to use vocal speech as a means of communication.
- The sounds, words and sentences are the stages in language development. The first cry or sound uttered by a child is its cry of birth. Crying, babbling and gestures are all important forms of pre-speech communication.
- We do not perceive the person's speech as a continuous stream of sound but rather as a sequence of phonemes, or discrete speech categories.
- Unlike phonemes, words carry meaning. However, they are not the only small linguistic units that convey meaning.
- Although children learn which phonemes are relevant during their first year of life, it takes several years for them to learn how phonemes can be combined to form words.
- Development of language is affected by cultural factors, environmental factors, degree of maturity, level of intelligence, physical conditions, number of children in the family, socio-economic status of the family and child's emotional development among other things.

5.6 KEY WORDS

- **Nativist:** A policy of favouring native inhabitants as opposed to immigrants.
- **Postulate:** To assume or claim as true, existent, or necessary.

- **Innate:** Inborn or native; existing in, belonging to, or determined by factors present in an individual from birth.
- **Hypothesis:** An assumption or concession made for the sake of argument.
- **Phoneme:** Any of the abstract units of the phonetic system of a language that correspond to a set of similar speech sounds (such as the velar \k\ of *cool* and the palatal \k\ of *keel*) perceived to be a single distinctive sound in the language.
- **Syntax:** The way in which words are combined to form constituent phrases or clauses.
- **Spectograph:** An instrument that disperses dispersing radiation (such as electromagnetic radiation or sound waves) into a spectrum and records or maps the spectrum.

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5.7 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short-Answer Questions

1. Define cognitive development in your own words.
2. List the various areas of mental development.
3. What are the noticeable growth stages in childhood before adolescence?
4. Write a short note on the sequence of language development.
5. What does the Behaviourist theory of language development say?

Long-Answer Questions

1. The process of maturity continues throughout all stages of development. Elaborate with examples.
2. Explain the factors that affect intellectual development.
3. Discuss Jean Piaget's theory of cognitive development.
4. What are the educational implications of Piaget's theory of development?

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UNIT 6 PHYSICAL DEVELOPMENT

Structure

- 6.0 Introduction
- 6.1 Objectives
- 6.2 Patterns of Physical Growth
 - 6.2.1 The Reflexes
- 6.3 Structural and Systematic Changes: Growth Rate, Ageing Process and Health Factors
- 6.4 Answers to Check Your Progress Questions
- 6.5 Summary
- 6.6 Key Words
- 6.7 Self Assessment Questions and Exercises
- 6.8 Further Readings

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6.0 INTRODUCTION

Physical development begins for human beings at infancy and goes on well into the adolescent stage and even up to puberty with maximum development happening in terms of motor skills. The individual grows to exercise control over the body, especially the muscles and physical coordination. Maximum physical development takes place during childhood, which is the most crucial time for neurological brain development and body coordination. That is why functions such as grasping, writing, crawling, and walking are encouraged at that age. As children grow, they begin realise what all their body is capable of doing. They gain self-confidence, and promote social and emotional development.

In this unit, you will read about the stages of physical growth, types of reflexes, growth rate, aging process and various health factors.

6.1 OBJECTIVES

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

- Describe the stages and patterns of physical growth
- Define reflex action and state the types of reflexes
- Outline the significance of health factors in growth and ageing
- Differentiate between chronological, biologic and psychological age

6.2 PATTERNS OF PHYSICAL GROWTH

Individuals possess the extraordinary ability to grow and become mature. At birth, a child weighs less than three kilograms. However, the weight keeps increasing

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slowly. Growth and ageing are influenced by genetic and extrinsic (outside or environmental) factors.

Physical growth may be divided into prenatal and post-natal development. Prenatal development is further divided into two phases:

- Embryonic phase (conception to 8 weeks)
- Foetal growth (8 weeks to birth)

1. Embryonic Phase

During this phase, fusion of two sex cells, an ovum from female and spermatozoon from male. This leads to the development of an embryo. Cells differentiate to form specific tissues and organs. At four weeks, heart is formed roughly and the heartbeat begins. By eight weeks, eyes, ears, nose, mouth fingers and toes are developed and a human form can be seen.

2. Foetal Development

From eight weeks to birth, further growth and development takes place. The body gains height and also width. Cephalocaudal direction shows the head and facial structures growing fastest followed by trunk and lower limbs which grow slowly. After that the proximodistal development takes place i.e. the trunk advances and then the limbs and then finally the last parts of the limbs i.e. the fingers and toes. This way the foetus takes its complete form.

Post natal development

After birth, the growth and development which takes place is simply the extension of the prenatal growth. During early years of childhood, girls and boys show almost same rate of growth. But as they grow older, girls tend to mature faster. Till about nine years, girls start showing growth faster than boys. But when boys become eleven, they grow faster.

Height of children is very rapid during infancy then towards childhood it becomes slow. Another rapid spurt in body growth is observed during adolescence and then again becomes slow after reaching adulthood.

As the body grows, there is observed a change in growth pattern. During childhood head weighs almost one-fourth of total body weight but during adulthood, it weighs only one-eighth of total body weight. Growth takes place due to increase in trunk length during adolescence while during infancy the head grows faster than the trunk. In girls there is a proportionate rate of growth in the ratio of shoulders and hip. While in case of boys, shoulders broaden more than the hip area.

Maturation

As body grows in size, the cells and tissues also increase in size. Gradually, a stage of maturation takes place in which the cells reach their state of full function. Each cell and tissue reaches its full mature functional state.

Maturation of the body is evident from the development of secondary sex characters. Individuals show a growth in cell size and the body reaches a state of full maturity physically. Physical growth reaches a state of maturity when tissues reach their state of full development.

The time and rate of growth is predicted by genetics but there are other factors as well that play a crucial role in the maturation such as extrinsic factors like environment.

Ageing

Physical growth of the body stops at the end of teenage or at the beginning of twenties. The size and status of the body achieved at this age sometimes continues during adulthood. Some measures of the body change during adulthood. Sometimes due to some calcium deficiency or osteoporosis, there is a decrease in height. Till mid-forties there is no decrease but thereafter sometimes a decrease in height is seen. This could be due to compression and flattening in the connective tissues of the body. With age there is an increase in body fat and a loss in muscle of the body.

Development of Human Locomotion

Locomotion is the act of moving or the capability to move from one place to another. The simple activity of moving from one place to another is locomotion. It is a complex activity which involves a number of cells and tissues.

When babies are born, their locomotion is totally limited. They cannot move at all. Gradually, movement starts. Movement may be divided into the following types:

- The crawling stage occurs when babies cannot move at all. They simply crawl on the floor with their stomach flat on the ground and makes attempts to move with the trunk itself. Gradually, as the babies grow older, they learn to use their hands and legs to crawl around. Soon their speed increases while crawling and is able to move from one place to another. Crawling include movement with chest and abdomen on the floor. After that the stage of low creeping takes place with the stomach a little above the floor but legs moving together symmetrically. Gradually they learn to rock back and forth. Thereafter, it is accompanied by creeping with the legs and arms.
- As children grow older, they start to stand with the help of support. Thereafter they can walk by themselves. Walking involves a series of steps with one leg alternating a step with the other. When one leg has moved half way then the other leg moves from its place. There is a period of double support in which both feet are on the ground. This is followed by single support time when one foot is on the ground and other foot is moving forward.

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- As a toddler starts walking, initially, the body is bent forward with arms spread out in order to balance the body. Babies move their foot in one direction and hip extension helps in the motion gradually. Babies acquire balance and then walks straight without any support.
- By the age of four, children can walk by themselves properly. Strides increases in length, speed also increases and then proper coordination is seen in the locomotion activity. In adulthood, there may be a change in the walk because of excess weight or some other medical issue. In old age, the person again needs support due to loss of strength.
- Another form of locomotion is running. During running, there is a position in which the body has one foot on the ground at a time. The other foot is propelled into the air followed by the other foot. For toddlers or very young children, this activity is very difficult to do. With practice however, they do get to do it well. Babies need a lot of coordination and balance in order to run fast.
- Other forms of locomotion are jumping, hopping and leaping. Jumping involves the activity in which children propels themselves upwards from the ground and lands on one foot or both the feet.
- Hopping is the activity in which individuals propel themselves with one foot and lands on the same foot.
- Leaping is the activity when individuals propel themselves with one foot and land on the other foot.

6.2.1 The Reflexes

An instantaneous involuntary response to a stimulus is called reflex action. It occurs below the level of consciousness. The average time span of a reflex action is a small fraction of a second.

Mechanism of reflex action: On coming in contact with any sense organ, the received stimulus (external information) is passed to the dendrites of the *sensory nerves* and is carried up to the spinal cord. This stimulus reaches the grey matter of spinal cord from where it is sent to the terminal end of the dendrites of the *motor nerve* and then through the motor nerves, it is sent to the concerned effector organ. Thus, the reflex action is completed. This complete cycle starting from the sensory organ up to the effector organ is called **reflex arc**. Generally, a bundle of sensory and motor nerves take part in this action, so it is called as a polysynaptic reflex. The whole mechanism of reflex action can be summarized in the following way:

- Stimulus • Receptor organ • Sensory nerve • Spinal cord
- Motor nerve • Muscular action of the effector organ

Examples of reflex action: Common examples of simple reflexes in man are:

1. **Knee jerk reflex (patellar reflex):** When tendon of the knee cap is tapped, it stimulates the stretch receptors in the tendon and the leg is involuntarily and momentarily straightened.
2. **Ankle jerk (Achilles reflex):** It is the extension of foot in response to tapping of the Achilles tendon.
3. **Closing of the eyelids (reflexive blinking):** When an object approaches the eye.
4. **Sneezing** in response to irritation of the lining of the nose.
5. **Yawning** in response to increased CO₂ in the blood and skeletal muscles of face and thorax.

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Types of Reflexes

1. **Unconditioned reflexes:** These are inborn, unclear and unconscious responses to the given stimuli. These are inborn reflexes transmitted through heredity. These are elicited in response to definite stimuli. Reflex arcs of unconditioned reflexes are constant. The examples cited above refer to unconditioned reflexes.
2. **Conditioned reflexes:** These are acquired during the lifetime of an animal through learning or experience to stimuli which originally failed to elicit a reaction. Conditioned reflexes involve the establishment of new reflex arcs and those which are close to the cerebral cortex. These are of temporary nature and may disappear or reappear again.

Russian physiologist **Ivan Pavlov** demonstrated the occurrence of conditioned reflexes through experiments with dogs. Normally, salivation occurs only when food stimulates the taste buds on tongue (unconditioned reflex). However, salivation can also occur by the sight and smell of food. These cases involve conditioned reflexes. **Pavlov** supplied an additional stimulus to the dog by ringing the bell whenever food was provided to it. In due course of time, the ringing of the bell at the time of lunch produced salivation in the dog even in the absence of food.

Characteristics of Reflexes

1. Reflex actions, or reflexes, are responses that are extremely quick.
2. Reflex actions are definite, i.e., a certain stimulus arouses a certain response in an arbitrary fashion.
3. They are involuntary and often entirely unconscious.
4. They are native or inherent in the organism.
5. They are permanent.

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6. They are unlearned.
7. They are always ready for action.
8. In a simple reflex are involved the following parts:
 - (i) a sense organ (receptor),
 - (ii) a sensory nerve,
 - (iii) the nerve centre,
 - (iv) the motor nerve and
 - (v) the muscles.

Educational Implications of Reflex Action

The main task of education lies in the field of conditioning the original behaviour. In the period of infancy itself, the basic fear and emotions which may persist in later life, can be conditioned. In the classroom the teacher should try to condition the behaviour of the child by substituting higher motives in place of original behaviour. Though the teacher can inhibit the original behaviour by associating it with a strong negative stimulus, he should preferably try to use positive substitutes.

Check Your Progress

1. What are the two stages of physical growth?
2. What are the stages of prenatal development?
3. Define reflex action.
4. State two characteristics of reflexes.

**6.3 STRUCTURAL AND SYSTEMATIC CHANGES:
GROWTH RATE, AGEING PROCESS AND
HEALTH FACTORS**

There are visible differences evident in physical growth, which are apparent from daily observations of our surroundings and people around us. People vary in terms of height, physical proportions, and fitness level. People are also different in terms of their ability to move and perform physical activities. These differences impact our maturity level, overall development, and health. The study of physical growth and development is essential to the development of a child. It is also central to medicine, education, and a multitude of other areas.

While the pattern of physical growth is generally the same for everyone, there can be many variations — in terms of the growth rate and growth timing and

the size attained. Chronological age offers an obvious point of reference for observing and recording growth.

The fundamental pattern of all human experiences is almost the same, yet there are important differences in the rate of growth and timing of growth from individual to individual during a life span. This is not merely a point of academic interest. If we consider a classroom comprising 12-year-old girls or 14-year-old boys, we will probably be faced with varying levels of physical growth and maturity. There may be relatively immature children as well as mature individuals who are almost adults.

Health Factors

Some factors impact physical growth significantly, such as nutrition, pollution, social and environmental status, psychological stress, and so on. The impact of poor diet and malnutrition can be seen at all stages of development. However, during the prenatal stage, infancy and early childhood the developing child's system is oversensitive to malnutrition. This is partly because the first couple of years of a human being's life see the fastest growth. According to various international studies, about 50 per cent of all deaths during the first five years happens because of poor nutrition and the associated inability to battle infectious illnesses.

During adolescence individuals are excessively vulnerable to the damaging effects of malnutrition. Nutritional needs are at their peak during this time of life. Although the rate of proportionate growth is slightly less than during the early years, it continues for longer periods. It is known to one and all that during adolescence young people experiment with food choices. Inappropriate choices will have deep and long-lasting effects. Conditions such as anorexia nervosa (fear of obesity) and bulimia nervosa (an eating disorder, characterised by binge eating followed by guilt and fasting) are rather common among adolescent girls and can pose a serious threat to both health and physical growth. Other than retarding an individual's rate of growth, a less than appropriate diet may adversely affect skeletal development. Insufficient intake of food is linked to conditions of osteoporosis — brittle bones — in women.

Children from poor families are usually shorter and lighter than their peers from higher-income families. They also eat less. Their timing of growth, not the growth itself, is impacted most by social and economic factors. For instance, puberty tends to set in earlier in those who belong to the richer class than in those from the poor class. A survey of pre-schoolers reveals that the height, weight, thickness of skin fold, muscle growth, etc is better children from wealthy families and higher economic ranks. By the time they attain adulthood, most of the difference decreases or is cancelled. Maximum evidence of social and economic factors is

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seen among men. In fact, most environmental stimuli seem to impact men more strongly than women. However, why this is so is not quite clear.

There is enough evidence that extreme stress can reduce the pace of physical growth and development. It is not clear as to what mechanisms are involved even though stress may have a negative impact on the secretion of growth hormones. A cluster of factors such as maternal care, social isolation, parental substance abuse, and sexual abuse are associated with psychological and emotional ill health. Recent research implies that certain children are genetically inclined to stress; their response to stress is rather extreme and prolonged resulting in limited growth.

Physical growth is impacted by many pollutants, such as lead, air pollution, some organic compounds, and tobacco smoke. Of course pollutants are somewhat unavoidable in the modern world, but levels of pollution differ significantly, and therefore their impacts will also differ from group to group.

Aging Process

Aging is linked with changes in dynamic biological, physiological, environmental, psychological, behavioural, and social processes. Greying hair, for instance, is a benign change pertaining to age. Other changes are seen in terms of reducing function of the senses and activities of daily life and increasing vulnerability to illnesses or weakness. In fact, advancing age is the primary risk factor for many chronic diseases in humans.

A close examination of the fundamental biology of aging with the use of laboratory animals—and now extended to human populations—has resulted in theories offering an explanation for aging. There is no one ‘key’ that explains aging. These studies demonstrate that while the passage of time does not change, the pace of aging can definitely be decreased. According to these studies if aging is targeted, it will also reduce the occurrence of illnesses and elongate life and health span.

There is no particular age for people to become old. Usually, 65 is considered as the age at which old age sets in. However, the reason has a historical basis, not a biological one. Several years ago, 65 was chosen as the age for retirement in Germany, — which was the first country to establish a retirement scheme— and it continues to be the retirement age for most people in developed societies, even though this traditional thought is changing.

So when does an individual actually become old?

- **Chronologic age:** This age has its basis solely on the passage of time. It is a person’s age in years. Chronologic age does not have much importance in health. However, the possibility of developing a health issues increases as people grow older. It is the health issues and not

normal aging, that are the main reason for functional loss at the autumn of one's life. Chronologic age is legally and financially useful as it helps predict various health issues.

- **Biological age:** This age pertains to alterations in the body that frequently take place as people grow older. As these changes impact certain people more and faster than others, they become biologically old at 40, while others become so at later ages. However, most noticeable differences in apparent age among people of similar chronologic age result due to lifestyle, habit, and understated impacts of illness rather than by changes in actual aging.
- **Psychological age:** Psychological age has its basis on the manner in which people act and feel. For instance, an 80-year-old who puts in hard work and planning into his future, and is eager to participate in several activities is considered to be psychologically young.

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Check Your Progress

5. When is the child's developing system extremely sensitive to malnutrition? Why?
6. Why is an appropriate diet important ?
7. What is chronological age?
8. What is biologic age?

6.4 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. Physical growth may be divided into prenatal and post-natal development.
2. Prenatal development can be divided into two stages:
 - Embryonic phase (conception to 8 weeks)
 - Foetal growth (8 weeks to birth)
3. Reflex action is an instantaneous involuntary response to a stimulus.
4. Reflex actions, or reflexes, are responses that are extremely quick. They are definite, that is, a certain stimulus arouses a certain response in an arbitrary fashion.
5. During the prenatal stage, infancy and early childhood the developing child's system is oversensitive to malnutrition. This is partly because the first couple of years of a human being's life see the fastest growth.

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6. Other than retarding an individual's rate of growth, a less than appropriate diet may adversely affect skeletal development. Insufficient intake of food is linked to conditions of osteoporosis — brittle bones— in women.
7. It is a person's age in years and is based only on passage of time.
8. This age pertains to alterations in the body that frequently take place as people grow older.

6.5 SUMMARY

- Physical growth may be divided into prenatal and post-natal development. Prenatal development is further divided into two phases—embryonic and foetal.
- Maturation of the body is evident from the development of secondary sex characters. Individuals show a growth in cell size and the body reaches a state of full maturity physically.
- When babies are born, their locomotion is totally limited. They cannot move at all. Gradually, movement starts. They crawl, then begin to stand with support, then walk but not with proper balance, then they walk properly before they learn to run and then finally go on to jumping, leaping, etc.
- An instantaneous involuntary response to a stimulus is called reflex action. It occurs below the level of consciousness.
- Unconditioned reflexes are inborn, unclear and unconscious responses to the given stimuli.
- Conditioned reflexes are acquired during the lifetime of an animal through learning or experience to stimuli which originally failed to elicit a reaction.
- While the pattern of physical growth is generally the same for everyone, there can be many variations — in terms of the growth rate and growth timing and the size attained.
- During the prenatal stage, infancy and early childhood the developing child's system is oversensitive to malnutrition.
- During adolescence individuals are excessively vulnerable to the damaging effects of malnutrition.
- Children from poor families are usually shorter and lighter than their peers from higher-income families.
- Extreme stress can reduce the pace of physical growth and development.
- Aging is linked with changes in dynamic biological, physiological, environmental, psychological, behavioural, and social processes.

6.6 KEY WORDS

- **Prenatal:** Before birth, during or related to pregnancy.
- **Stimulus:** A thing or event that evokes a specific functional reaction in an organ or tissue.
- **Inherent:** Existing in something as a permanent, essential, or characteristic attribute.
- **Embryo:** An unborn or unhatched offspring in the process of development, in particular a human offspring during the period from approximately the second to the eighth week after fertilization (after which it is usually termed a foetus).
- **Foetus:** An unborn or unhatched offspring of a mammal, in particular an unborn human more than eight weeks after conception.
- **Locomotion:** Ability to move from one place to another.

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6.7 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short-Answer Questions

1. List the various stages of physical growth.
2. What is postnatal development?
3. How is maturation visible?
4. What was Ivan Pavlov's contribution to the study of reflexes?
5. Write a note on ageing.
6. List the various types of age.

Long-Answer Questions

1. Discuss the mechanism of reflex action. State examples of reflex action.
2. Describe the various conditioned and unconditioned reflex actions.
3. How do health factors affect physical growth?
4. Differentiate between chronological and biological age.

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UNIT 7 CHILDHOOD

Structure

- 7.0 Introduction
- 7.1 Objectives
- 7.2 Physical, Emotional, Cognitive, Social and Moral Development of Children
- 7.3 Aggression and Altruism
- 7.4 Answers to Check Your Progress Questions
- 7.5 Summary
- 7.6 Key Words
- 7.7 Self Assessment Questions and Exercises
- 7.8 Further Readings

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7.0 INTRODUCTION

In the previous unit, you learnt about the patterns of physical growth, reflexes, growth rate and the ageing process. This unit will discuss childhood — early and middle.

Childhood is the stage of human development that spans from birth to adolescence. According to the Swiss development psychologist and philosopher Jean Piaget, childhood comprises two stages of development: preoperational stage and concrete operational stage.

The unit will also talk about cognitive development language development, emotions, aggression and altruism among other things.

7.1 OBJECTIVES

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

- Discuss the different aspects and stages of childhood development
- List the characteristics of emotions
- Discuss the characteristics of emotional, intellectual and moral development of children
- Identify the causes of aggression
- Explain altruistic behaviour in children

7.2 PHYSICAL, EMOTIONAL, COGNITIVE, SOCIAL AND MORAL DEVELOPMENT OF CHILDREN

Let us discuss the different aspects and stages of childhood development.

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Early Childhood (2 to 6 Years)

1. **Physical development:** Growth in physical dimension during the period of 2 to 6 years of age is not as accelerated as that experienced in infancy. The child begins to assume the body proportions of an adult. Growth of legs is rapid and the legs represent about half of one's total height. The head growth is slow and trunk growth is intermediate. Generally the weight of a three-year-old male child is about 33 pounds and is 38 inches tall. The girls are a bit lighter and shorter. By the age of five the average height for boys is 43 inches and the average weight is 43 pounds. The height and weight are affected by a number of variables such as height of parents, nutrition, and illness, etc.

In addition to size and weight, the child undergoes other physical and physiological changes. The muscles develop at a very rapid speed. Larger muscles are far better developed than the small and fine ones. Physiological changes occur in respiration, heart rate slows down and blood pressure goes up steadily. Brain has developed 90% of its adult weight. Nerve fibres in the brain areas come close to maturity level by the end of preschool period.

2. **Perceptual development:** Perceptual development refers to the development of the five senses: sight, sound, taste, touch, and smell.

The perceptual development begins from mass movements to differentiation and integration. Table 7.1 gives the norms for children from two years to five years of age.

Perceptual development is that aspect of cognitive development that permits a young human being to begin interpreting and understanding sensory input. The progress is very rapid in the first year of life. because of their engagement with the world around them. The children learn more about what they touch, see, smell, hear, and taste. That is why it is always recommended that children be brought up in an environment that is rich with a variety of stimuli.

Perceptual development is a process closely linked to motor development. For instance, as infants grow, they start holding up their heads in a stable manner; they are able to turn their heads so that their eyes are able to scan the environment. They learn to crawl and then go on to walk. With such progress comes opportunity to engage purposefully with the environment and surroundings. As little babies grow, they develop manual dexterity, and are able to hold, shake and turn objects such as rattles and balls.

Certain facets of perception start showing up shortly after birth, while others require to be refined or developed. For instance, newborns are not born with ideal vision. A few weeks pass by before they are able to actually distinguish between different patterns, discern brightness and sharpness of

colours or even detect and follow movements. Being surrounded with enriching materials, such as brightly coloured mobiles and toys of various patterns and shapes results in this kind of development in infants.

Table 7.1 *Developmental Norms (Bulher, Gessell Terman)*

Motor	2 years	3 years	4 and 5 years
Development	Walks without help, jumps, runs.	Skips, hops	Free and active movement, responds to music.
Fine motor coordination	Copying.	Can match shapes, sees similarities and differences	Can name colours.
Perceptual	Identifies self, matches colours.	Can fit nets, boxes.	Matches shapes and colours, distinguishes names.
Vocalization	200 words, uses few words.	900 words, follows commands.	Can repeat 4 digits—2000 to 3000 words, can define familiar words.
Adaptive behaviour	Bowel control.	Builds blocks, can draw a man.	4 digits, draws body with details.

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3. **Language development:** The language development of the infant begins from birth cry. The ten-month-old child is able to use one word but by the end of the first year, his vocabulary increases to 3 or 4 words. Good home environment and early childhood training help in the development of vocabulary. It has been reported by several studies that there is positive correlation between intelligence and language development. The following table shows the development of vocabulary:

Age in year	Vocabulary	
	Smith	Terman
1. year	3	
2.	272	
3.	896	
4.	1560	
6.	2562	
8.		3600
12.		900

4. **Intellectual development:** The intellectual and moral development of the child is accelerated after the age of two because now he begins to explore his social environment and acquires new experiences.

Following are the major characteristics of intellectual and moral development:

- Child begins to form concepts of physical and social reality.

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- By the age of six the child develops perception of size, shape, colour, time and distance, etc.
 - Memory increases at a very rapid speed. The child can learn by rote memorization.
 - Creativity develops in children and imagination begins to grow.
 - Thinking and reasoning develops in relation to concrete material.
 - Span of attention increases from seven minutes to twenty minutes and interest in exploring the environment increases.
 - The child is now able to use symbols in language, draw symbolic play and engage in problem solving.
 - The child asks questions about his environment.
5. **Social development:** A child is born in a social environment where his personality development is shaped in accordance with the norms of the society:
- Sense of trust and mistrust develops in children themselves and A child is born in a social environment where his personality development is shaped in accordance with the norm of the society their environment.
 - Feeling of autonomy develops in children. They begin to explore their environment independently.
 - Social environment expands beyond home.
 - Children of both sexes play together without any discrimination. They actively participate in group games in which physical energy is used such as hide and seek.
 - They learn to cooperate with others and make friends on shared interests and similar personality traits.
 - Children take interest in fairy tales and animal stories.
 - Negativism increases between the years three to six. It is a product of social situations. It is said that the more the child is frustrated by adult interference, the more negativistic his behaviour will be.
 - Girls are more dominating than boys in play situations.
 - The child seeks social approval of his action.
6. **Emotional development:** Emotions play an important role in life and contribute in the personal and social adjustment of the individual provided they are directed into wholesome expression. Emotions have the following effects on the developing individual:
- Emotions give us energy to face a particular situation in life.

- They work as motivators of our behaviour.
- Emotions add pleasure to our everyday experiences in life.
- They maintain our interest in work.
- They influence our adjustment in the society.
- Highly emotional conditions disturb our mental equilibrium; our reasoning and thinking are disrupted.
- Emotions serve as a media of communication between individuals and guide the individual to modify in order to conform to the social standard.
- Emotional deprivation leads to personality maladjustment.

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Characteristics of Emotions

- Emotions are frequent.
- They are expressed in relation to the concrete objects.
- They are temporary. It means that the child shifts his emotions very rapidly. For example, a child of 3 years who is weeping, if given a toffee, will become happy.
- Emotional expressions in early childhood are intense irrespective of the intensity of the stimulus.
- Children fail to hide their emotions but express them indirectly through different activities as crying, nail-biting, thumb-sucking and speech difficulties.
- Emotions change in strength. Emotions which were very strong at a certain age become weak as the child grows while others which were weak become stronger. This change may be due to change in drive strength, child's intellectual development and changes in interests and values.

Later Childhood (6 to 12 Years)

Later childhood is an important phase of life. Redl, a prominent psychologist and educator, has characterised this period as the time, 'when nicest children often begin to behave in the most awful way'. The parents and teachers are annoyed with children and vice-versa. It is a period which requires proper guidance and counselling by parents and teachers for the adequate adjustment of children in the society.

G Stanley Hall in his book *Adolescence* has given the following description of children from 8 to 12 years of age.

'The years from 8 to 12 years constitute the unique period of human life ... the brain has acquired nearly its adult size and weight, health is almost at its best, activity is greater and more varied than even before or than it will ever be again

and there is peculiar endurance, vitality, and resistance to fatigue. The child develops a life of his own outside the home circle and its natural interests are never so independent of adult influence.'

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1. **Physical development:** There is slow increase in weight and height during late childhood. Girls are ahead of boys by two years. Changes are shown in all general proportions of the body. Children are free from diseases at this age. Physiologically, the girls at the age of 11 are a full year ahead of the boys. Shedding of milk teeth and growth of permanent teeth changes the appearance of mouth; flattening of forehead, sharpening of the nose, broadening of the chest, and motor skills develop through play. Following are the marked changes:

- Increased manual dexterity
- Increased strength
- Increased resistance to fatigue
- Accuracy and endurance increase in relation to games.

W.F. Dearborn, as American educator and experimental psychologist, writes 'There is organic need for strenuous physical activity. Skeletal muscles are developing and require exercise. Nine to eleven year old children dash breathlessly from place to place, never walk when they can run, never run when they can jump or do something more strenuous.'

2. **Intellectual and moral development:** The following changes in the intellectual and moral development occur during the period—six years to twelve years of age.

- The child begins to make a clear distinction between himself and the outer world. He seeks reality in his environment.
- The concept of natural laws becomes almost fully developed by 12 years of age.
- It is the time for eager absorption of information and ready accumulation of ideas. Learning and memory become more efficient because the child enters formal schooling.
- Capacity for logical thinking increases. The child becomes increasingly efficient in selecting, developing and applying cognitive operations in relation to concrete objects.
- Interest in science stories and mechanical operations reaches its height at this age.
- Courage and loyalty increase. Children show courage in doing things.
- Imaginative plays are given preference to.

- Use of reading of factual material, scientific and mathematical information and fiction, with a realistic theme increases.
 - Use of causal relationship in thinking about physical, mechanical and natural phenomena in the environment increases.
 - Early imaginative fears disappear by the age of 12.
 - High ability to generalize is shown by children of ten to twelve years of age. Children are more concerned with immediate cause-and-effect relationship and current happenings.
3. **Emotional development:** Emotions are very important in life. Without emotions life becomes monotonous and dull. They change with the age of the child. Following are the characteristics of emotional changes during this period:
- Early pattern of emotional expression changes. By the end of late childhood the child learns to control his emotional expression in social situations.
 - The emotional responses of the child become less diffused, random and undifferentiated.
 - Emotions are expressed even in the absence of concrete objects.
 - Emotions are most contagious during childhood, because children are highly suggestible and dependable on others.
 - Early childhood fears of animals, high places and noise disappear and fear of supernatural, imaginary creatures, fear of failing, being ridiculed and being different appear.
 - Anger is caused by thwarting, teasing, making unfavourable comparisons with other children, interruption of activities in progress, ridicule by peers or elders, and negligence, etc.
 - Parental favouritism causes jealousy in childhood.
 - Girls are more jealous than boys in their classes because of preferential treatment given to boys.
 - Joy, pleasure, love, curiosity, grief and affection appear in childhood.
4. **Social development:** The process of socialisation confines to home and neighbourhood environment in early childhood but as the child enters school his social circle widens. Following are the major changes:
- It is the period when children form peer group of their own sex and remain outside the home. Peer group becomes an important agent of socialisation.
 - It is the period of peak unruliness in school and home.

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- Complaints of disobedience are highest in percentage during this period.
- Children reject adult standards and circle of friends widens.
- Delinquency begins more during this period than adolescence.
- Sex differentiation becomes sharp. Girls play with girls and boys play with boys. There is sex difference in play activities. Girls are more antagonistic towards boys.
- Boys are more rebellious than girls and their groups are more organized than the groups of girls.
- Children take interest in group games. Boys and girls form their own groups. Group consciousness develops and the child becomes less selfish, self-centred and aggressive but more cooperative and outgoing.
- Social consciousness develops very rapidly. It is called 'gang age' period when the child associates himself with the peer group of the same age who feel and act together. The child shows great loyalty to his gang. He conforms to the stand of his gang.

Tentative Suggestions for Guidance of Parents and Teachers

- Proper environment should be provided in home and school. Children should be encouraged to express their feelings.
- Security and independence should be given in home and school.
- Provide opportunities to participate in games, cultural activities and picnic, etc.
- Do not compare boys with girls.
- Be democratic in your outlook while dealing with children.
- Provide opportunities for boys to have more association with men during childhood.
- When children show emotional outbursts, treat them calmly and intelligently.
- Respect the individuality of the growing child and express faith in children.
- Reinforce the desirable behaviour of children.
- Remember that children are members of a peer society which has great influence on their personality.
- Out-of-family experiences should be provided for children in the local community.
- The immature and inadequate forms of expressing independence may be considered a desirable step in the direction of self-reliance.

- The gang membership of children during this period should not be resented by parents and teachers because it provides them opportunity for self-expression, escape from over-solitude, feeling of importance and security.
- Children should be encouraged to participate in activities at home and school.
- Interest in crafts and hobbies should be developed.
- Opportunities should be provided for experimentation.
- Reading should be encouraged by providing literature.
- School should provide experience of local environment.
- Skills should be developed in games and manual activities. Girls and boys should be given different types of instructions.
- Games, play activities and physical experiences appropriate to the age-levels of children should be organized.
- Emotions should be properly trained. Emotional energy should be properly directed in useful and socially-approved channels.

NOTES

Check Your Progress

1. What are the changes that are seen in childhood other than in size and weight?
2. What is perceptual development?
3. How can vocabulary development be facilitated?
4. Why is the intellectual and moral development of a child accelerated after he turns two?
5. State two characteristics of emotions.
6. What is the reason for jealousy in children?

7.3 AGGRESSION AND ALTRUISM

Children can be aggressive for many reasons —psychological, medical, circumstances, and so on. To handle aggression, you have to first find out what is causing it.

When children become angry very easily and their anger is uncontrollable, it is called angry child syndrome. The condition needs to be diagnosed and managed early on in order to prevent dangerous consequences. There are no specific reasons or factors for angry child syndrome, but other than pre-existing medical conditions, three underlying mental disorders that are usually linked to angry child syndrome are: oppositional defiant disorder or ODD, bipolar disorder, and child antisocial disorder.

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Oppositional Defiant Disorder (ODD)

ODD sets in early on in children, before they hit their teens. Some of the common symptoms of ODD are as follows:

- **Excessive anger:** Children with ODD lose their temper easily and over petty things. They are temperamental and lose their calm at the most unlikeliest and trivial issues.
- **Tendency to break rules:** Children with ODD tend to go against the rules or enjoy breaking rules. They tend to go against what their parents and caregivers say or expect.
- **Relationship issues:** The children find it difficult to maintain relationships at home and in school. Such children are not very close to their parents nor do they have friends at school.
- **Argumentative:** Children will get into arguments for no reason, just to make others upset.
- **Irritability:** Children with ODD will always be irritable.
- **Irresponsible:** They will not take responsibility for any actions, but will blame others for everything.
- **Unempathetic:** They have no empathy and do not feel for others.
- **Spite:** Such children are full of spite and enjoy hurting others physically or mentally.

ODD can be mild, that is, can be handled at home by the caregivers and parents by altering their attitude and treatment of the child. ODD can also be severe, wherein professional help may be required post diagnosis.

Bipolar Disorder

Bipolar disorder is not always diagnosed easily as most symptoms are similar to that of attention deficit disorder, a disorder that results in lack of concentration and focus. The symptoms commonly found in children with bipolar disorder are:

- **Mood swings:** Children exhibit extreme mood swings. They will be very happy at times and suddenly become extremely sad/depressed or angry.
- **Talking to themselves/withdrawal:** Children tend to talk to themselves in isolation. They may even withdraw into a shell.
- **Lack of sleep or vice versa:** children may suffer from insomnia or even sleep too much.
- **Incessant chatter:** If they do not become absolutely withdrawn and quiet, they may end up talking all the time, non-stop.

- **Alcoholism:** Children may fall prey to alcohol or drugs or may even engage in other risky or dangerous activities

Like ODD, bipolar disorder can be treated successfully once diagnosed.

Child Antisocial Disorder

Antisocial children display the following common symptoms:

- They indulge in illegal activities.
- They enjoy causing hurt to others verbally and sometimes even physically.
- They are impulsive in nature.
- They tend to lie.
- They exhibit anger and aggression.

Aggressive behaviour can be caused by the following:

- (i) **Mood disorders:** Children with bipolar disorder at times show much aggression that they are close to behaving like maniacs. They have no control over themselves and act very impulsively. But if they are depressed, they become very irritable, cranky and end up lashing out.
- (ii) **Psychosis:** The psychotic illnesses may also show up along with anger and aggression. For instance, schizophrenic children often react to internal stimuli that can be very upsetting and disturbing. Such children become suspicious and find it difficult to trust anyone. Their mistrust goes to the extent of paranoia. They become fearful of people and are unable to handle their own fears.
- (iii) **Frustration:** Kids who are autistic or suffer from intellectual impairment or communication issues may also exhibit anger and aggression. Such children are aggressive because they are unable to handle their own anxiety or frustration. They are unable to express their feelings and problems to others. Their aggression is a type of impulsive action.
- (iv) **Impulsivity:** Children with disruptive behaviour disorders are commonly impulsive and are unable to make proper decisions. The most common disorder in this group is attention deficit hyperactivity disorder (ADHD). Such children are indecisive, aggressive and act without giving any thought to the results of their actions. They appear to be insensitive, heartless, and nasty to others, but the truth is that they are not thinking clearly at all.
- (v) **Conduct Disorder:** Children with conduct disorder (CD) are hateful, insensitive and malevolent on purpose. Unlike the child with ADHD, they are aware of their actions and indulge in hurtful behaviour intentionally.

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- (vi) **Injury:** Some children exhibit aggression due to injury to certain crucial parts of the body. **For instance, if the** frontal lobe is injured due to some accident or if the child is epileptic, the child may exhibit aggressive behaviour at times. In such situations, they children may be angry or display outbursts for no particular reason.
- (vii) **Trauma:** There are also times when anger in children or teenagers is caused by stress and not because of any emotional reason, but such situations are rare. If the child is frequently aggressive, there is generally some emotional issue simmering within the child.

Altruism in Childhood

The dictionary will tell you that altruism is unselfish behaviour or deep concern for the well-being of others even if puts the person himself at a disadvantageous position.

Altruism is the opposite of selfishness. It is characterised by concern for others and indulging in acts for the benefit of others solely. Altruistic acts are done without expecting anything in return. Altruistic behaviour in humans is deeply rooted in biology, and varies from individual to individual and from culture to culture. In adults, the variation in altruistic behaviour is attributed to emotional responsiveness to fear in others. As per a recent study, increased altruistic behaviour is linked to a greater responsiveness to fear faces and not happy faces. This implies that altruistic behaviour is associated with individuals' response to other individuals who are in distress/trouble. This is commonly seen across cultures. The study that examined Indians and Germans, revealed that Indian children who exhibited more altruism were more sensitive to the context while responding to fearful faces.

Altruism comes naturally in children. The sense of cooperation exists within them, inherently. Small children are selflessly helpful and love to share without expecting any reward in return. But this changes as they grow and become affected by their surroundings and their judgement of others. They grow up to give more thought to what others think of their actions and their actions then become calculated.

However, it is observed that:

- Altruism makes people happy.
- Altruism gives rise to a feeling of interconnectedness
- Altruism results in a powerful sense of personal identity
- Altruism provides an aim to an aimless individual.

Check Your Progress

7. What is angry child syndrome?
8. What is ODD?
9. State two symptoms of bipolar disorder.
10. What causes aggression?
11. What is altruistic behaviour?

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7.4 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. In addition to size and weight, the child undergoes other physical and physiological changes. The muscles develop fast. Larger muscles are far better developed than the smaller ones. Physiological changes take place in respiration. The heart rate slows down and blood pressure goes up steadily. The brain develops 90 per cent of its adult weight. Nerve fibres in the brain areas come close to maturity level by the end of the preschool period.
2. Perceptual development refers to the development of the five senses: sight, sound, taste, touch, and smell.
3. A good home environment and early childhood training help develop vocabulary. There is a positive link between intelligence and language development.
4. The intellectual and moral development of the child is accelerated after the age of two because now he begins to explore his social environment and acquires new experiences.
5. Emotions are frequent, temporary and expressed in relation to the concrete objects.
6. Parental favouritism causes jealousy in childhood. Girls are more jealous than boys in their classes because of preferential treatment given to boys.
7. Excessive and uncontrollable anger in children is termed angry child syndrome.
8. ODD stands for oppositional defiant disorder, which occurs early on in children. The symptoms are anger, irritability, tendency to break rules, making others upset on purpose, pleasure in hurting others, and so on.
9. Bipolar disorder is often mistaken for attention deficit disorder. Children suffering from ADD are often sleepless, are found talking in isolation, may sleep all the time, and so on.

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10. Aggression can be caused by mood disorders, psychosis, frustration, impulsivity, conduct disorder, injury or trauma.
11. Acts indulged in completely for the benefit and well-being of another person without any expectation of reward or gain are altruistic in nature. Therefore, in simple words, altruistic behaviour is unselfish behaviour.

7.5 SUMMARY

- Growth in physical dimension during the period of 2 to 6 years of age is not as accelerated as that experienced in infancy.
- Perceptual development refers to the development of the five senses: sight, sound, taste, touch, and smell. The perceptual development begins from mass movements to differentiation and integration.
- The language development of the infant begins from birth cry. The ten-month-old child is able to use one word but by the end of the first year, his vocabulary increases to 3 or 4 words.
- The intellectual and moral development of the child is accelerated after the age of two because now he begins to explore his social environment and acquires new experiences.
- Emotions play an important role in life and contribute in the personal and social adjustment of the individual provided they are directed into wholesome expression.
- Emotional expressions in early childhood are intense irrespective of the intensity of the stimulus.
- Later childhood is an important phase of life. Redl, a prominent psychologist and educator, has characterised this period as the time, 'when nicest children often begin to behave in the most awful way'.
- The concept of natural laws becomes almost fully developed by 12 years of age.
- By the end of late childhood the child learns to control his emotional expression in social situations.
- The process of socialisation confines to home and neighbourhood environment in early childhood but as the child enters school his social circle widens.
- When children become angry very easily and their anger is uncontrollable, it is called angry child syndrome.

- Common symptoms of oppositional defiant disorder are: excessive anger, tendency to break rules, relationship issues, argumentativeness, irritability, irresponsibility, lack of empathy and spitefulness.
- Antisocial children enjoy hurting others, do not hesitate to lie, and exhibit anger and aggression.
- Altruism comes naturally in children.

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7.6 KEY WORDS

- **Schizophrenia:** A long-term mental disorder of a type involving a breakdown in the relation between thought, emotion, and behaviour, leading to faulty perception, inappropriate actions and feelings, withdrawal from reality and personal relationships into fantasy and delusion, and a sense of mental fragmentation.
- **Psychosis:** A severe mental disorder in which thought and emotions are so impaired that contact is lost with external reality.

7.7 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short-Answer Questions

1. Write a note on physical development in early childhood.
2. What is perceptual development? Give two examples.
3. How does language develop in early childhood?
4. What causes negativistic behaviour in children?
5. What is bipolar disorder?

Long-Answer Questions

1. Discuss the developmental norms of childhood.
2. Discuss the effect of physical, emotional, cognitive, social and moral development on a child.
3. Discuss the intellectual and moral development of children in later childhood.
4. Describe the process of socialisation that takes place in later childhood.
5. Explain why emotions are essential for the development of children.
6. How can parents and teachers contribute to the child's development?

7.8 FURTHER READINGS

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UNIT 8 INTELLECTUAL DEVELOPMENT

NOTES

Structure

- 8.0 Introduction
- 8.1 Objectives
- 8.2 Psychometric Approach to Intellectual Development
- 8.3 Piaget and the Information Processing Approach
- 8.4 Moral Development
 - 8.4.1 Kohlberg's Levels of Morality
- 8.5 Language Development
 - 8.5.1 Acquisition of Language
- 8.6 Answers to Check Your Progress Questions
- 8.7 Summary
- 8.8 Key Words
- 8.9 Self Assessment Questions and Exercises
- 8.10 Further Readings

8.0 INTRODUCTION

Intellectual development is all about the changes that take place because of growth and experience, in a person's ability to think, reason, relate, judge, conceptualise, and so on. It particularly deals with such changes in children.

While it is easy to keep track of a child's physical growth, it is not so easy to track their mental growth. Renowned psychologist Jean Piaget divides the intellectual development of children into phases. This unit will familiarise you with the psychometric approach to intellectual development. It will also discuss moral development and the acquisition of language by human beings, among other things.

8.1 OBJECTIVES

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

- Understand the significance of psychometrics in the study of intellectual development
- Elaborate on the importance of Piaget's approach to cognitive development as compared to the information processing approach
- Discuss moral development and Kohlberg's levels of morality
- Explain how language develops in human beings

8.2 PSYCHOMETRIC APPROACH TO INTELLECTUAL DEVELOPMENT

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Psychometrics is the study of the theory and technique of psychological measurement. According to the National Council on Measurement in Education (NCME), psychometrics is concerned with psychological measurement. It is the field of psychology and education dedicated to testing, measuring, assessing, and so on.

It deals with the objective measurement of skills and knowledge, abilities, attitudes, personality traits, and educational achievement. Certain psychometric researchers concentrate on creating and validating assessment instruments — questionnaires, tests, raters' judgments, and personality tests. Yet others are involved in research pertaining to measurement theory (e.g., item response theory; intraclass correlation).

Psychometricians have created many measurement theories including the classical test theory (CTT) and item response theory (IRT). A method which appears to be mathematically similar to IRT yet is rather unique, when it comes to its origins and features. It is represented by the Rasch model for measurement. The development of the Rasch model, and the broader class of models to which it belongs, was explicitly founded on requirements of measurement in the physical sciences.

Psychometricians have also come up with techniques for working with large matrices of correlations and covariances including factor analysis, a technique of determining the fundamental dimensions of data; multidimensional scaling, a technique to find a simple representation for data with many latent dimensions; and data clustering, a model for seeking objects similar to one another. All these multivariate descriptive techniques attempt to distill huge amounts of data into simpler structures. Modern structural equation modelling and path analyses offer more sophisticated approaches to working with large covariance matrices. These techniques permit statistically sophisticated approaches to be fixed to data and tested to determine whether they fit adequately.

Psychometric theories have usually attempted to comprehend the structure of intelligence—its forms and parts. Theories such as this have usually been founded on and tested using data received from paper-and-pencil tests of mental abilities including analogies. Underlying the psychometric theories is a psychological approach as per which intelligence is an amalgamation of abilities measured by mental tests. This model is frequently quantified based on the assumption that each test score is a weighted linear composite of scores on the fundamental abilities. For instance, performance in a number-series test may be a weighted composite of number, reasoning, and memory abilities for a complex series. Since the mathematical model is additive, it assumes that less of one ability can be made up for by more of another ability in test performance. For instance, two people could

gain equivalent scores on a number-series test if a deficiency in number ability in one individual relative to the other is compensated for by superior reasoning power.

British psychologist Charles E. Spearman's was the first of the main psychometric theories. He published his first chief article on intelligence in 1904. Spearman noticed that individuals who performed well on one mental ability test ended up performing well in others too. Individuals who failed to perform well on one test ended up doing well on others too. Spearman came up with a method for statistical analysis, which he termed factor analysis. It studies patterns of individual differences in test scores and provides an analysis of the underlying sources of these individual differences.

A majority of the early theoretical and applied work in psychometrics was done to try and measure intelligence. The origin of psychometrics is linked to the field of psychophysics. Spearman was the pioneer who developed approaches to measure intelligence. Having been taught by Wilhelm Wundt, he was trained in psychophysics. The psychometrician, L. L. Thurstone later developed and applied a theoretical approach to the measurement, which is referred to as the law of comparative judgment. This approach is closely connected to the psychophysical theory developed by Ernst Heinrich Weber and Gustav Fechner. Also, Spearman and Thurstone contributed significantly to the theory and application of factor analysis, a statistical technique that has been used expansively in psychometrics.

Not long ago, psychometric theory was applied to measure personality, attitudes and beliefs. It has also been successfully used in academics and healthcare.

Originally psychometric instruments were created to measure intelligence. The most popular historical approach involves the Stanford-Binet IQ test by the French Psychologist Alfred Binet. While there is no concrete proof that innate intelligence and learning capacity can be measured through such instruments, IQ tests are widely used for various purposes. It is used in academics to measure the abilities in various domains, such as reading, writing, and mathematics. The primary approaches in the application of tests in these domains have been Classical Test Theory and the more modern Item Response Theory and Rasch measurement models. These recent approaches allow joint scaling of persons and assessment items, which creates the foundation for mapping of development through descriptions of the skills exhibited at various points along a continuum. Such approaches offer powerful information about the nature of developmental growth within various fields.

Psychometrics has also focussed on personality testing. There have been a range of theoretical approaches that conceptualise and measure personality. Some of the popular instruments include the Minnesota Multiphasic Personality Inventory and the Myers-Briggs Type Indicator. Psychometrics has also been used to study attitudes. The Likert scale has commonly been used to measure attitudes. An alternative approach involves the application of unfolding measurement models, the most general being the Hyperbolic Cosine Model (Andrich & Luo, 1993).

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Robert Sternberg—the founder of the Triarchic Theory of Intelligence—and other critics of the psychometric model, observe that individuals in the general population have a kind of different conception of intelligence than most experts. Their argument is that the psychometric approach measures only a part of what is commonly understood as intelligence. Other critics argue that the equipment used in an experiment often governs the results and that proving for example, that intelligence exists does not prove that the present equipment measures it accurately. Sceptics often argue that so much scientific knowledge about the brain is still to be discovered that claiming the conventional IQ test methodology to be infallible is just a small step towards claiming that Craniometry was the sure shot technique for the measurement of intelligence (which had scientific advantages on the basis of knowledge available in the nineteenth century).

Check Your Progress

1. What is psychometrics?
2. Who published the most popular psychometric theories?
3. What was the purpose of psychometric instruments?
4. Who developed the psychophysical theory?

8.3 PIAGET AND THE INFORMATION PROCESSING APPROACH

Information processing approaches have become an important alternative to Piagetian approaches.

According to Piaget, there are four stages to cognitive development:

- (i) Sensorimotor stage: birth to 2 years
- (ii) Preoperational stage: ages 2 to 7
- (iii) Concrete operational stage: ages 7 to 11
- (iv) Formal operational stage: ages 12 and up

While the rate may vary, the sequence does not. Information-processing theory considers cognitive development as an ongoing process wherein people increase their short-term memory capacity, long-term knowledge, as well as make use of strategies throughout their life.

Both these theories admit that children are limited in their thinking abilities throughout their cognitive development. However, children are adept at obtaining mechanisms that lead to the expansion of their way of thinking.

Information-processing approaches to cognitive development seek to identify the ways individuals take in, use, and store information. Information processing approaches grew out of developments in the electronic processing of information,

particularly as carried out by computers. They assume that even complex behaviour such as learning, remembering, categorising, and thinking can be broken down into a series of individual, specific steps.

In stark contrast to Piaget's view that thinking undergoes qualitative advances as children age, information-processing approaches assume that development is marked more by quantitative advances. Our capacity to handle information changes with age, as does our processing speed and efficiency. Furthermore, information processing approaches suggest that as we age, we are able to control the nature of processing better and that we can change the strategies we use to process information. An information processing approach that builds on Piaget's original work, which viewed cognition abilities, neo-Piagetian theory considers cognition as being made up of different types of individual skills. Using the terminology of information processing approaches, Neo-Piagetian theory suggests that cognitive development proceeds quickly in certain areas and more slowly in others. For example, reading ability and the skills needed to recall stories may progress sooner than the sorts of abstract computational abilities used in algebra or trigonometry. Furthermore, neo-Piagetian theorists believe that experience plays a greater role in advancing cognitive development than traditional Piagetian approaches claim.

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Check Your Progress

5. State one difference between Piaget's view and the information-processing approach.
6. What is the neo-Piagetian theory?
7. What are the four stages of cognitive development according to Piaget?

8.4 MORAL DEVELOPMENT

Baqer Mehdi and B.P. Gupta in an NCERT publication entitled, *Psychology of the Child and Curriculum* (1983) observe, 'Moral development of the child implies inculcation in the child of a number of qualities for which curriculum provides ample opportunities'. According to them, following are some of the important moral qualities which need to be attended to in schools:

- Honesty in words and deeds
- Truthfulness
- Self-respect and a desire to respect others
- Righteousness
- Self-control
- Duty consciousness
- Compassion.

Piaget's Views on Moral Development

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Jean Piaget (1932) used the interview method to find out the various stages of moral development of the child. According to him, there are four stages: (i) Anomy - the first five years (ii) Heteronomy - Authority (5-8, years) (iii) Heteronomy - Reciprocity (9-13 years) and (iv) Autonomy - Adolescence (13-18 years).

1. **Anomy** (First Five Years). Piaget called the first stage *Anomy*, the stage without the law. At this stage the behaviour of the child is neither moral nor immoral but *non-moral* or *amoral*. His behaviour is not guided by moral standards. The regulators of behaviour are pain and pleasure. This is the 'discipline of natural consequences' as advocated by Rousseau.
2. **Heteronomy (a) Discipline of Authority** (5-8 years). The second stage of moral development may be called the *discipline of artificial consequence*. imposed by adults. Moral development at this stage is controlled by external authority. Rewards and punishments regulate moral development.
3. **Heteronomy (b) Reciprocity** (9-13 years). At the third stage, there is the morality of cooperation with peers or *equals*. This stage is regulated by the norm of reciprocity which implies that 'we should not do to others what will be offensive to us.' Conformity with the group becomes imperative.
4. **Autonomy - Adolescence** (13-18 years). Piaget calls this stage *equity* stage also. As Piaget puts it, while reciprocity demands strict equality, autonomy develops equity, taking into account such factors as motive, circumstance, etc. The individual at this stage is fully responsible for his behaviour. J. A. Hadfield (1964) observes as, 'The goal of moral authority is to know ourselves, accept ourselves, be ourselves.' The rules governing moral behaviour come from *within* the individual. Such autonomy is the ideal of moral development.

The different levels of moral development associated with the different age levels must not be looked upon as fixed stages for all children. Further it should not be assumed that each succeeding stage makes the child give up the preceding stages.

In the past the study of moral development was considered to be on the fringe of psychology. It has now become a worthy independent topic of study that has important implications.

The term *moral* is derived from the Latin word *mores*, meaning manners, customs and folk ways. Morality is indissolubly linked with social system. The child has to learn what is *good* and what is *bad*, what is *right* and what is *wrong*. He has also to learn his *duty*. All these terms clearly imply that morality has reference to social relationship and the social process. Morality has two dimensions which

are closely interlinked. Rules of morality operate in the social context. Secondly, it is used to mean pursuit of good life—personal moral code.

Intellectual Development

8.4.1 Kohlberg's Levels of Morality

A L Kohlberg (1963) distinguished three levels of moral development. Pre-conventional, conventional and post-conventional, each divided into two stages.

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Pre-conventional Level

Stage 1: Punishment and Obedience Orientation: The moral development is determined by the physical consequences of an action whether it is good or bad. Avoiding punishment and bowing to superior authority are valued positively.

Stage 2: Instrumental Relativist Orientation: Right action consists of behaviour that satisfies child's own needs. Human relations are considered in reciprocity. It may be seen in a pragmatic way, i.e., "you scratch my back and I'll scratch yours."

Conventional Level

Stage 3: Interpersonal Concordance: At this stage, the child begins to like the goodwill of others and tries to please others to obtain their approval in the form of 'good boy', 'nice girl'. Good moral behaviour always pleases others.

Stage 4: Orientation towards Authority: Focus is on authority or rules. One shows respect for authority.

Post-conventional Level

Stage 5: Social Contract Orientation: Right behaviour is defined according to the standards agreed upon by the group or society. These standards can be changed through a proper procedure.

Stage 6: Universal Ethical Principle Orientation: At this stage, the individual keeps in mind not only the norms of society but also the universal moral principles. To uphold these principles, an individual may be prepared to sacrifice his all, including his life.

Check Your Progress

8. How did Piaget find out the stages of moral development in children?
9. What is anomy?
10. What is the fourth stage of moral development?
11. What were the levels of moral development given by Kohlberg?
12. What happens at the conventional level of moral development?

8.5 LANGUAGE DEVELOPMENT

NOTES

A major feature that distinguishes human beings from animals is their ability to use speech as a means of communication. Sometimes, the words ‘speech’ and ‘communication’ are used as if they mean the same thing. Actually, speech is only a form, or medium, of communication in human beings, though the most important one. Other forms of communication are: (i) facial and other bodily movements that show different emotions, (ii) touch, (iii) sign language used by the deaf, (iv) written symbols of words, and (v) arts such as music, dance and painting.

Broadly speaking, the tools of communication may be categorised under two heads—signs and symbols. Symbols are unique to human beings.

Language permits the communication of information from one generation to the other. It passes wisdom to future generations. It performs the following main functions:

- Language helps to communicate ideas to others.
- Language helps in the formation of concepts.
- Language helps in the analysis of complexities.
- Language helps us to focus attention on ideas which would otherwise be difficult to keep in mind.

A psychologist is instrumental in structuring a language because in it he finds some aspects of the human structure of thinking.

Stages in Language Development

Sounds, words and sentences are the stages in the development of a language. The first cry or sound uttered by a child is its cry of birth. Crying, babbling and gestures are all important forms of ‘pre-speech’ communication. A mother starts talking to her child right from the moment of its birth. She talks to the child when she feeds it. She talks to it when she changes its clothes. She talks to it when she bathes it. This infuses and reinforces the sound making behaviour in the child. It is pleasant for the entire family to hear and listen to the sounds made by the infant. It becomes a rewarding experience for the child.

Crow and Crow (1962) pointed out the sequential steps in the progress of language development thus:

1. Feeble gestures and sounds,
2. Babbling,
3. Use of simple spoken vocabulary,
4. One-word sentences,
5. Combination of words into sentences,

6. Development of skill in reading,
7. Handling the tools of communication.

Gessel and Thompson (1934) reported about language growth as babies coo when they are 12 to 16 weeks old. They are able to combine some vowels and consonants and repeat them in succession when they are 5 to 6 months old. They can speak a word or more when they are one year old.

A W Lynip (1951) recorded voice samples of an infant for 56 weeks beginning with its birth cry. With a sound spectrograph, he analysed these records and noted that the infant did not produce a single vowel or consonant sound comparable to adult vowels or consonants until about the age of one year.

E L Thorndike and I Lorge spent a number of years in counting the words which were used in popular magazines and children's books in the USA. It was found that the word 'I' was used most often. The following table shows the numbers of times a word is used. A word's choice was made from nearly 2,00,00,000 words. The count of each word is from text bunches of 10,00,000 words.

Table 8.1 Showing the number of times a word is used per 10,00,000 words.

Word	Frequency of use
I	19,886
have	5,434
about	2,204
father	719
remember	374
position	168
contain	83
headquarters	23

According to Piaget, a child grows from *ego-centric speech* to *socialised speech*. In ego-centric speech, the child is concerned with himself and with talking to himself. In socialised speech, he tries to exchange ideas.

Growth of vocabulary with age

Studies show that the first word uttered by the child is when she or he is about one year of age (or 10 months). There may be delay in speech when the reinforcement is slack. The comprehension and speech depend on a number of factors, particularly the socio-economic background and parental education. Verbal interaction between parents and children is less in lower class homes. Educated middle-class parents stimulate their children linguistically by reading to them or discussing events with them.

By one year, the child knows about three words, by two years of age he knows nearly 300 words, by three years he knows nearly 1,000 words, and by five years he knows about 2,000 words.

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Study conducted by Smith (1926) revealed the following:

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<i>Years</i>	<i>Months</i>	<i>No. of words acquired</i>
0	8	0
0	10	1
1	0	3
1	3	19
1	6	22
1	9	118
2	0	272
2	6	446
3	0	896
3	6	1,222
4	0	1,540
4	6	1,870
5	0	2072
5	6	2,289
6	0	2,562

Competence in Language

Two kinds of competence in language must be identified. There is, first of all, the 'linguistic competence'. *Linguistic* competence involves the increase of one's vocabulary and improvement of the ability to construct proper sentences by using the rules of grammar. The other kind of competence is *communication* competence. This competence is developed through specialized courses on 'public speaking', 'group discussion' etc.

Order of Priority in the Teaching of Languages

The order of priority in language learning must be:

LISTENING I SPEAKING I READING I WRITING.

Of course, learning to speak a language has the shortest road in the whole process of learning a language. Language learning must be made appealing to the pupil in as many ways as possible. This appeal in the early stages may lie in the sense of sight and hearing. The visual appeal (sense of sight) demands maximum use of pictures, sketches and diagrams. The auditory sense (sense of hearing) is stimulated naturally by the reproduction of sounds, their musicality and rhythm.

Improvement in Speaking

There are four major tasks in learning to speak. They are: (i) pronouncing words correctly, (ii) learning new words, (iii) connecting meanings with words, and (iv) weaving words together into sentences. All the four tasks undergo improvement

during the early years of childhood. The amount of improvement depends upon chances of learning and guidance.

For improving pronunciation, four things matter. With a good model to imitate and with good guidance to copy it, children improve their pronunciation. Children should be taught to pronounce shorter and simpler words. They may be asked to say the words over and over again. Faulty pronunciation should be corrected immediately.

Speech Difficulties

Young children may develop incorrect speech habits on account of slow maturation or inadequate environment stimulation. It may be of omission of letters, faulty pronunciation, or incorrect use of grammar. Lispering, slurring and stammering are some common forms of speech defect. In lispering, the child finds it difficult to sound certain words correctly. Slurring is caused by running words together. The rapidity of speech interferes with distinct enunciation. Stammering is caused by emotional difficulties such as anxiety, failure, frustration, hostility and insecurity. Correction should concentrate more on emotional nature of the problem.

Factors Influencing Language Development

Some factors that influence the development of language in a child are rather important, such as imitation of the language of parents, other adults and teachers; cultural factors; environmental factors; degree of maturity; level of intelligence and physical conditions; number of children in the family; socio-economic status of the family; child's emotional development and the teacher's own command of the language.

D McCarthy (1920) noted consistent difference in favour of the upper social class children in language maturity. M Deutsch (1963) found that the home of the lower class child had few objects to provide variety of stimulation. R Hess and V Shipman (1966) taped samples of the mother's language. It was found that middle-class mothers used more complex sentences than the low-class mothers.

In India, a study on language development of children was conducted in 1971 by B Kuppaswamy. The responses of 480 children studying in Kindergarten, first, third and fifth grades speaking Kannada were considered. Rural children were found to be definitely inferior to the urban children. The child in the village or in the slum of urban India had fewer things to observe and play with. Moreover, he lacked facilities like television. This provided opportunity to the middle-class child to learn more words and have a good vocabulary by the time he goes to school.

8.5.1 Acquisition of Language

Language is our primary means of communicating our thoughts. Everyone can master and use an enormously complex linguistic system.

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Human beings use the language acquisition process to acquire the ability to perceive and understand language, as well as to produce and use words and sentences for communication.

By the time they are six years old, children usually master maximum basic vocabulary and grammar of their first language.

Second language acquisition is the process by which a person learns a language other than his or her mother tongue.

Irrespective of the language they are exposed to, Children achieve linguistic milestones in parallel fashion.

Stage 1 Screaming or Crying (0-6 months)

Stage 2 Babbling (6-9 months)

Stage # 3. Sound Imitation or echo reaction stage

Stage # 4. Verbal understanding

Stage # 5. Verbal utterances

At about 6-8 months, all children begin to babble. They make repetitive sounds, such as dada, baba, and so on. At about 10-12 months they speak their first words, and between 20 and 24 months they begin to put together words.

Kids between the ages of two and three speak a wide variety of languages and manage to use infinitive verbs in main clauses or even omit subjects in sentences, even though the language they are familiar with may not have such an option. Children tend to over-regularise the past tense or other tenses.

At the age of nine months babies begin uttering to a bit of a beat. They reflect the rhythm of the language they are learning. The melody of intonation of language becomes distinct.

As toddlers begin to learn more words, they use them in combination to come up with more complex ideas. Vocabulary and grammar grow hand in hand. It is observed that English-speaking children actively use about 3000 words by the time they turn five. By the age of thirteen, the figure goes up to 20,000 and by the age of 20, it goes up to 50,000.

Language use has two aspects—production and comprehension. In the production of language, we start with a thought, somehow translate it into a sentence, and end up with sounds that express the sentence. In the comprehension of language, we start by hearing sounds, attach meanings to the sounds in the form of words, combine the words to create a sentence, and then somehow extract meaning from it. Language use seems to involve moving through various levels. At the highest level are sentence units, including sentences and phrases. The next level is that of words and parts of words that carry meaning (the prefix or the suffixes, for example).

The lowest level contains speech sounds; the adjacent levels are closely related. The phrases of a sentence are built from words and prefixes and suffixes,

which in turn are constructed from speech sounds. Language is therefore a multilevel system for relating thoughts to speech by means of word and sentence units (Chomsky, 1975). The following are the levels of language:

- **Level 1: Speech sounds:** We would not perceive the person's speech as a continuous stream of sound but rather as a sequence of phonemes, or discrete speech categories. For example, the sound corresponding to the first letter in 'boy' is an example of a phoneme symbolized as 'b'. Every language has a different set of phonemes.
- **Level 2: Word units:** Unlike phonemes, words carry meaning. However, they are not the only small linguistic units that convey meaning. Suffixes, such as 'ly', or prefixes such as 'un' also carry meaning. They can be added to words to form more complex words with different meanings. The term morpheme is used to refer to any small linguistic unit that carries meaning. The most important aspect of a word is its meaning. Some words are ambiguous because they name more than one concept.
- **Level 3: Sentence units:** As listeners, we usually combine words into sentence units, which include sentences as well as phrases. An important property of these units is that they can correspond to parts of a thought, or proposition. Such correspondences allow a listener to extract propositions from sentences.
- **Level 4: Phrases and prepositions:** Analysing a sentence into noun and verb phrases, and then dividing these phrases into smaller units like nouns, an adjective, and verbs, is syntactic analysis. Syntax deals with the relationships between words in phrases and sentences. Syntax primarily serves to structure the parts of a sentence.

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Understanding Sentences

Development occurs at all three levels of language. It starts at the level of phonemes, proceeds to the level of words and other morphemes, and then moves on to the level of sentence units, or syntax.

Phonemes and combinations of phonemes

Although children learn which phonemes are relevant during their first year of life, it takes several years for them to learn how phonemes can be combined to form words. When children first begin to talk, they occasionally produce difficult words like *dumber* for *lumber*. By age four, however, children have learned most of what they need to know about phoneme combinations.

Words and concepts

At about one year of age, children begin to speak. One-year-olds already have concepts for many things (including family members, household pets, food, toys,

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and body parts), and when they begin to speak, they are mapping these concepts onto words that adults use. The beginning vocabulary is roughly the same for all children. Children who are 1 to 2 years old talk mainly about people (dada, mama, baby, etc.). Thereafter, the child's vocabulary development virtually explodes. At a year and a half, a child might have a vocabulary of twenty-five words, at six years, the child's vocabulary grows; children have to learn new words at the rate of almost ten per day (Miller and Gildea, 1987). Children seem to be attained to learning new words.

From primitive to complex sentences

Between the ages of a year and a half and two and a half years, the acquisition of phrase and sentence units, or syntax begins. Children start to combine single words into two-word utterances. Children progress rapidly from two-word utterances to more complex sentences that express propositions more precisely.

Learning process

Innate factors must also play a role. That is why children raised in English-speaking households learn English whereas children raised in French-speaking households learn French.

Imitation and conditioning

One possibility is that children learn language by imitating adults. Although imitation plays some role in the learning of words (a parent points to a telephone says, 'phone' and the child tries to repeat the word), it cannot be the principal means by which children learn to produce and understand sentences. A second possibility is that children acquire language through conditioning. Adults may reward children when they produce a grammatical sentence and correct them when children make mistakes. For this to work, parents would have to respond to every detail in a child's speech. However, Brown, Cazden, and Bellugi (1969) found that parents do not pay attention to how the child says something, as long as the statement is comprehensible. Also, attempts to correct a child (and, hence, apply conditioning) are often futile.

Hypothesis testing

The problem with imitation and conditioning is that they focus on specific utterances. However, children often learn something general as a rule. They seem to form a hypothesis about a rule of language, test it, and retain it if it works.

Innate factors

Some of our knowledge about language is inborn or innate. If our innate knowledge is very rich or detailed, the process of language acquisition should be similar for different languages, even if the opportunities for learning differ among cultures unique to the human species?

The richness of innate knowledge

All children, regardless of their culture and language, seem to go through the same sequence of language development, which is as follows:

- When children are one; they speak a few isolated words.
- At about two years of age, they speak two- and three-word sentences.
- At three years, sentences become more grammatical.
- At four years, the children's speech sounds much like that of an adult.

Cultures differ markedly in the opportunities they provide for children to learn from adults. In some cultures, parents are constantly speaking to their children, whereas in others parents verbally ignore their children. The fact is that this sequence is so consistent across cultures which indicate that our innate knowledge about language is very rich. Indeed, our innate knowledge of language seems to be so rich that children can go through the normal course of language acquisition even when there are no language users around them to serve as models or teachers.

Critical periods

More recent research indicates that there is also a critical period for learning syntax. With respect to understanding and producing words with multiple morphemes, such as 'untimely', which consists of the morphemes 'un;', 'time', and 'ly', native signers did better than those who learned ASL when entering school, who in turn did better than those who learned ASL after age twelve (Meier, 1991; Newport)

Symbols and concepts as different components of thought formation of concepts

Thought can be conceived of as a 'language of the mind'. Actually, there may be more than one language. One mode of thought corresponds to the stream of sentences that we seem to 'hear in our mind'. It is referred to as propositional thought because it expresses a proposition or claim. Another mode, imagined thought, corresponds to images, particularly visual ones that we can 'see' in our minds.

Teacher—the Architect of the Child's Language Development

All teachers engaged in the teaching work in general and language teachers in particular greatly influence language development of children. This is all the more important at pre-school and elementary stages. The most important point to be noted is that their form of communication is correct and simple. They should speak very clearly and in a modulated voice. Their pronunciation should be very distinct and free from faults. They should connect meaning when they use new words. In the earlier stages concrete objects and charts, etc. may be used. A balanced and judicious repetition strengthens learning.

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Guidelines for improving young children's comprehension:

1. Short sentences should be used.
2. Whenever a new word is spoken, it must be explained properly.
3. Facial expressions and gesture may be used to explain words and sentences.
4. It should be kept in view that the speech to which children are subjected to on a daily basis should be correct so that they have an ideal model for imitation.
5. Children should be asked to question to make sure that they understand.
6. Audio-visual aids may be used to develop children's comprehension.
7. Children should be encouraged to speak in front of adults.
8. Teachers should be helpful and pleasant when correcting errors.
9. Children should be encouraged to listen carefully.
10. Teachers should talk to children about a wide range of interesting topics, partly to encourage listening and partly to add to their general knowledge of things to think and talk about.
11. Teachers should not wait for a child to outgrow poor speech.

Activities for understanding spoken and written language

1. Providing opportunities to children for free conversation to take place between themselves and the teachers.
2. Providing opportunities for listening to the recorded programs of songs, stories, dramas, etc.
3. Providing opportunities for participation in storytelling, dramatization, etc.
4. Providing opportunities for recitation of nursery rhymes and singing of songs.
5. Providing opportunities to children to associate sounds with appropriate pictures of trees, birds, animals, objects, etc.
6. Making use of storytelling for promoting language development.
7. Preparing a list of difficult words involving similar syllables or consonant clusters and helping children to correct pronunciation.
8. Asking children to practice repeated usage in different situations.
9. Providing opportunities to children with songs and choruses, dances and music to engage their interest.
10. Providing opportunities to children to listen to other media like radio.
11. Providing opportunities to children to read pictures.
12. Asking children to find out small differences in two or more similar pictures.

13. Asking children to name the particular action in pictures, e.g., whenever an animal is standing, sitting, running etc.
14. Presenting suitable aids and materials for identification, discrimination, and to develop reading readiness of children.

Activities for development of readiness for writing

The process of writing implies finer muscular coordination. It implies the development of small muscle control, eye span and then eye-hand coordination so that children are able to use their physical skills in written expression.

Introduction of activities pertaining to drawing of straight lines and curves to facilitate the skill of writing at a later stage is very helpful

Art activities like easel painting, finer painting, crayoning, sand writing, clay modeling, tracing, cutting and pasting of various shapes should be introduced.

Tracing equipment in Montessori apparatus should be made use of in developing writing readiness.

At one time the study of moral development was considered to be on the fringe of psychology, but recently it has come to the fore as a worthy topic that has important implications.

The term *moral* is derived from the Latin word *mores* meaning customs and folk ways. Morality is indissolubly linked with the social system. The child has to learn what is *good* and what is *bad*, what is *right* and what is *wrong*. He must also to learn his *duty*. All these terms imply clearly that morality has reference to social relationship and social process. Morality has two dimensions which are closely interlinked. The rules of morality operate in the social context. Secondly it is used to mean the pursuit of good life—personal moral code.

Check Your Progress

13. What are the forms of communication other than speech?
14. What are the stages in the development of a language?
15. How did Crow and Crow sequence the steps in language development?
16. What is linguistic competence?
17. What are the two aspects of language use?

8.6 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. Psychometrics is the study of the theory and method of psychological measurement. It deals with the objective measurement of skills and knowledge, abilities, attitudes, personality traits, and educational achievement.

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2. British psychologist Charles E. Spearman's was the first of the main psychometric theories.
3. Originally psychometric instruments were created to measure intelligence.
4. The psychophysical theory was developed by Ernst Heinrich Weber and Gustav Fechner.
5. As per Piaget's view thinking undergoes qualitative advances as children age. In sharp contrast, the information-processing approaches assume that development is marked more by quantitative advances.
6. The neo-Piagetian theory is an information processing approach that builds on Piaget's original work. It considers cognition as comprising various types of individual skills and suggests that cognitive development proceeds quickly in certain areas and more slowly in others.
7. According to Piaget, there are four stages to cognitive development :
 - (i) Sensorimotor stage: birth to 2 years
 - (ii) Preoperational stage: ages 2 to 7
 - (iii) Concrete operational stage: ages 7 to 11
 - (iv) Formal operational stage: ages 12 and above
8. Jean Piaget (1932) used the interview method to find out the various stages of moral development of the child. According to him, there are four stages: (i) Anomy - the first five years (ii) Heteronomy - Authority (5-8, years) (iii) Heteronomy - Reciprocity (9-13 years) and (iv) Autonomy -Adolescence (13-18 years).
9. The first stage of moral development , the one with the law, was named Anomy by Jean Piaget. At this stage the child's behaviour is neither moral nor immoral. It is amoral or non-moral.
10. Piaget calls the fourth stage *equity* stage. While reciprocity demands strict equality, autonomy develops equity, taking into account such factors as motive, circumstance, etc. The individual at this stage is fully responsible for his behaviour
11. A L Kohlberg (1963) distinguished three levels of moral development — pre-conventional, conventional and post-conventional.
12. At this stage, the child begins to like the goodwill of others and tries to please others to obtain their approval in the form of 'good boy', 'nice girl'. Good moral behaviour always pleases others.
13. Forms of communication other than speech are: (i) facial and other bodily movements that show different emotions, (ii) touch, (iii) sign language used by the deaf, (iv) written symbols of words, and (v) arts such as music, dance and painting.
14. Sounds, words and sentences are the stages in the development of a language.

15. Crow and Crow (1962) pointed out the sequential steps in the progress of language development thus:
 1. Feeble gestures and sounds
 2. Babbling
 3. Use of simple spoken vocabulary
 4. One-word sentences
 5. Combination of words into sentences
 6. Development of skill in reading
 7. Handling the tools of communication.
16. *Linguistic* competence involves the increase of one's vocabulary and improvement of the ability to construct proper sentences by using the rules of grammar.
17. Language use has two aspects—production and comprehension.

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8.7 SUMMARY

- Psychometrics is the study of the theory and technique of psychological measurement.
- Psychometrics deals with the objective measurement of skills and knowledge, abilities, attitudes, personality traits, and educational achievement.
- A majority of the early theoretical and applied work in psychometrics was done to try and measure intelligence
- The most popular historical approach involves the Stanford-Binet IQ test by the French Psychologist Alfred Binet. While there is no concrete proof that innate intelligence and learning capacity can be measured through such instruments, IQ tests are widely used for various purposes.
- Psychometrics has also focussed on personality testing. There have been a range of theoretical approaches that conceptualise and measure personality.
- The Likert scale has commonly been used to measure attitudes.
- According to Piaget, there are four stages to cognitive development :
- Sensorimotor stage: (i) birth to 2 years; (ii) Preoperational stage: ages 2 to 7 (iii) Concrete operational stage: ages 7 to 11 and (iv) Formal operational stage: ages 12 and up.
- Information-processing approaches to cognitive development seek to identify the ways individuals take in, use, and store information.
- Jean Piaget (1932) used the interview method to find out the various stages of moral development of the child.

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- According to Piaget, there are four stages: (i) Anomy - the first five years (ii) Heteronomy - Authority (5-8, years) (iii) Heteronomy - Reciprocity (9-13 years) and (iv) Autonomy -Adolescence (13-18 years).
- A L Kohlberg (1963) distinguished three levels of moral development—pre-conventional, conventional and post-conventional, each divided into two stages.
- Actually, speech is only a form, or medium, of communication in human beings, though the most important one. Other forms of communication are: (i) facial and other bodily movements that show different emotions, (ii) touch, (iii) sign language used by the deaf, (iv) written symbols of words, and (v) arts such as music, dance and painting.
- The tools of communication may be categorised under two heads—signs and symbols.
- Sounds, words and sentences are the stages in the development of a language.
- According to Piaget, a child grows from *ego-centric speech* to *socialised speech*.
- Studies show that the first word uttered by the child is when she or he is about one year of age (or 10 months).
- *Linguistic* competence involves the increase of one's vocabulary and improvement of the ability to construct proper sentences by using the rules of grammar.
- *Communication* competence is developed through specialized courses on 'public speaking', 'group discussion' etc.
- The order of priority in language learning must be: Listening->speaking->reading-> and writing.
- There are four major tasks in learning to speak. They are: (i) pronouncing words correctly, (ii) learning new words, (iii) connecting meanings with words, and (iv) weaving words together into sentences.
- Language use has two aspects—production and comprehension.
- Language use seems to involve moving through various levels. At the highest level are sentence units, including sentences and phrases. The next level is that of words and parts of words that carry meaning (the prefix or the suffixes, for example).
- We would not perceive the person's speech as a continuous stream of sound but rather as a sequence of phonemes, or discrete speech categories.
- As listeners, we usually combine words into sentence units, which include sentences as well as phrases.

- Development occurs at all three levels of language. It starts at the level of phonemes, proceeds to the level of words and other morphemes, and then moves on to the level of sentence units, or syntax.
- Although imitation plays some role in the learning of words (a parent points to a telephone says, 'phone' and the child tries to repeat the word), it cannot be the principal means by which children learn to produce and understand sentences.
- Cultures differ markedly in the opportunities they provide for children to learn from adults. In some cultures, parents are constantly speaking to their children, whereas in others parents verbally ignore their children.
- All teachers engaged in the teaching work in general and language teachers in particular greatly influence language development of children.

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8.8 KEY WORDS

- **Montessori:** A system of education for young children that seeks to develop natural interests and activities rather than use formal teaching methods.
- **Fringe:** An ornamental border of threads left loose or formed into tassels or twists, used to edge clothing or material.
- **Hypothesis:** A supposition or proposed explanation made on the basis of limited evidence as a starting point for further investigation.
- **Primitive:** Relating to, denoting, or preserving the character of an early stage in the evolutionary or historical development of something.

8.9 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short-Answer Questions

1. What is the significance of psychometrics?
2. Write a note on the origin of psychometrics.
3. What is heteronomy?
4. What are the various forms of communication?
5. Write a note on the language acquisition process.

Long-Answer Questions

1. Explain the four stage of cognitive development as per Jean Piaget.
2. Discuss Piaget's view on moral development. Explain the four stages as given by Piaget.
3. Elaborate Kohlberg's levels of morality.
4. Explain the stages of language development.

8.10 FURTHER READINGS

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BLOCK - III
EMOTION AND DEVELOPMENT

Emotional Development

**UNIT 9 EMOTIONAL
DEVELOPMENT**

NOTES

Structure

- 9.0 Introduction
- 9.1 Objectives
- 9.2 Emotions
- 9.3 Emerging Sense of Self
 - 9.3.1 The Self-Concept
- 9.4 Emotions and Temperament Throughout Lifespan Development
- 9.5 Socialisation
- 9.6 Answers to Check Your Progress Questions
- 9.7 Summary
- 9.8 Key Words
- 9.9 Self Assessment Questions and Exercises
- 9.10 Further Readings

9.0 INTRODUCTION

Emotional development is a person's ability to recognise, express, and manage feelings at different stages of life and to empathise with the feelings of others. The development of these emotions, which could be negative and positive, are impacted by the environment an individual is brought up in, the family that brings him up and the siblings and friends he spends time with.

The first sign of emotion in an infant is the smile. From then on several additions are made to the repository of emotions throughout a person's life—joy, disgust, anger, sadness, fear and so on.

In this unit, you will learn about a child's emotional and social development. The unit discusses the concept of the self and the significance of emotions and temperament.

9.1 OBJECTIVES

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

- Define emotions
- Explain the development of emotions in a human being's life cycle
- Understand the significance of temperament

- Explain the concept of self
- Elaborate on the social development of human beings from infancy to adulthood

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9.2 EMOTIONS

Emotions play an important role in life and contribute to the personal and social development of an individual. Continuous emotional disturbance affects the individual's growth and development and gives rise to mental, physical, social and other problems. It also tends to hamper intellectual training. On the other hand, an emotionally stable individual leads a happy, healthy and peaceful life. He is at ease with himself, his surroundings and other fellow beings. Therefore, the development of emotions is extremely important for the harmonious development of the personality of an individual. Emotions influence all the aspects of an individual's personality. Proper training and education will go a long way to enable the young people to control their emotions and obtain mental balance and stability. Emotions are the prime motive forces of thought and conduct and their control is very important. It is often said, 'To keep one's emotions under control and be able to conceal them is considered a mark of strong character'.

- Child A is a **happy** child.
- Child B gets **angry** over small things.
- Child C always looks **sad**.
- Child D is very **jealous** of his younger brother.
- All these children show signs of expressing emotions.

Meaning of emotions

Etymologically the word 'emotion' is derived from the Latin word *Emovere* which means to stir up, **to agitate** or to excite. RS Woodworth (1945), by making use of this explanation has defined emotion in this way, 'Emotion is a **moved or stirred up** state of an organism. It is a stirred up state of feeling, that is, the way it appears to the individual himself. It is a disturbed muscular and glandular activity—that is the way it appears to an external observer'.

According to Crow and Crow (1973), an emotion 'is an effective experience that accompanies generalised inner adjustment and mental and psychological stirred up states in the individual, and that shows itself in his own behaviour'.

William McDougall (1949) says, 'An instinct is an inherited or innate psychophysical disposition which determines its possessor to perceive and to pay attention to objects of a certain class, to experience an emotional excitement of a particular quality upon perceiving such an object, and to act in regard to it in a particular manner, or, at least, to experience an impulse to such an action'. This statement

gives us the nature of emotions as well. According to McDougall, an instinctive behaviour has three aspects:

- (i) Cognitive or knowing or the perceptual aspect
- (ii) Affection or feeling or emotional effects
- (iii) Conative or doing or striving or executive, active or the behavioural aspect

Let us take an example. A child sees a bull coming towards him. He experiences an instinctive fear and undergoes the above three processes. First, he perceives the bull, second, he experiences an emotion of fear and third, he tries to run away. It is, therefore, concluded that an emotion is an affective experience that one undergoes during an instinctive excitement.

McDougall discovered 14 basic instincts and pointed out that each and every emotion, whatever it may be, is the product of some instinctive behaviour.

The instincts with their associated emotions are listed alphabetically as under:

No.	Instinct	Emotion Accompanying an Instinct
1.	Acquisition	Feeling of ownership
2.	Appeal	Distress
3.	Construction	Feeling of creativeness
4.	Curiosity	Wonder
5.	Flight or Escape	Fear
6.	Food seeking	Appetite
7.	Gregariousness	Feeling of loneliness
8.	Laughter	Amusement
9.	Parental	Tenderness, Love
10.	Pugnacity or Combat	Anger
11.	Repulsion	Disgust
12.	Self-assertion	Positive feeling or elation
13.	Sex, Mating	Lust
14.	Submission	Negative feeling

Kimball Young notes, 'Emotion is the aroused psychological state of the organism marked by increased bodily activity and strong feelings directed to some subject'.

Chief characteristics of emotions

There are several characteristics associated with humans and emotions. Some of these important ones are given below:

1. Emotional experiences are associated with some instincts or biological drives.
2. Emotions, in general, are the product of perception.

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3. The core of an emotion is feeling that which is essentially linked with some sort of urge or impulsive act to do. There is only a difference of degree between feeling and emotion.
4. Every emotional experience involves several physical and psychological changes in the organism. Some of these changes, like bulge of the eyes, flush of the face, flow of tears, pulse rate, are easily observable. Also, there are internal physiological changes like circulation of blood, impact on the digestive system and changes in the functioning of some glands.
5. Emotions are frequent.
6. Emotions are expressed in relation to concrete objects or situations.
7. Emotions are temporary.
8. Emotional expressions in early childhood are intense irrespective of the intensity of the stimulus.
9. Small children fail to hide their emotions and express them indirectly through different activities like crying, nail-biting, thumb-sucking and speech difficulties.
10. Emotions are prevalent in every living organism.
11. Emotions are present at all stages of development and can be aroused in young as well as in old people.
12. Emotions differ from person to person.
13. The same emotion can be aroused by a number of different stimuli—objects or situations.
14. Emotions rise abruptly but die slowly.
15. Emotions are subject to displacement. The anger aroused on account of one stimuli gets transferred to other situations. The anger caused by the rebuking of the officer to his subordinate may be transferred in beating of his children at home.
16. One emotion may give rise to a number of likewise emotions.

Effects of emotions on the developing individual

Given below are the important effects of emotions on the developing individual:

1. Emotions provide energy to an individual to face a particular situation.
2. Emotions work as motivators of our behaviour.
3. Emotions influence our adjustment in the society.
4. Highly emotional conditions disturb the mental equilibrium of an individual.
5. Highly emotional conditions disturb the reasoning and thinking of an individual.

Check Your Progress

1. What is the significant of emotions in a human being's life?
2. What are the basic instincts discovered by McDougall?
3. State two effects that emotions may have on an individual.

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9.3 EMERGING SENSE OF SELF

The self is one of the oldest and the most enduring concepts in psychology. Philosophers have always been interested in knowing the self. The self is a social construction formed on the basis of interaction with others. This concept of the self affects the way we relate to others, judge others, etc. because of the way we see ourselves. So the self is used as reference point for social interaction and perceiving others.

The self has multiple components. Yet, we all have an integrated view of ourselves. This is the core of every individual. It is the basis of social identity. The self helps us to evaluate our very being.

9.3.1 The Self-Concept

'Self-concept', also referred to as self-perspective or self-construction, is a multi-dimensional construct that refers to an individual's perception of 'self' in relation to any number of characteristics, such as academics (and non-academics), gender roles and sexuality, racial identity, and many others. While closely related with self-concept clarity (which 'refers to the extent to which self-knowledge is clearly and confidently defined, internally consistent, and temporally stable'), it presupposes but is distinguishable from self-awareness, which is simply an individual's awareness of his self. It is also more general than self-esteem, which is a purely evaluative element of the self-concept.

Self is a highly complex, but unified image of an individual. The self is held together by a cognitive framework called the schema. It is a guide to how we process information about ourselves. It is a coherent unit of our affective and cognitive structures that gives meaning to our experiences.

Since the self is the core of every social being, all information that is significant for the self would tend to be better processed than any other type of data. Higgins and Bargh (1987) indicate that self-relevant information is more readily attended to, retained in memory better and also recalled more effectively. Such a process is known as the self-reference effect. This effect has been established experimentally, as well.

Many selves

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Markus and Nurius (1986) suggest that each person’s self-concept is a working self-concept at any time. This is open to change as new experiences and new information come by. For example, we change our appearances, learn new skills, develop newer attitudes, etc. These result in a new self. Individuals themselves could consciously develop a new self, which the others might also acknowledge.

Time and experiences can lead to a newer self. Sometimes, traumatic experiences can also lead to such an alternation in the self; for example, the death of a close and significant person or some disastrous episodes in one’s life.

Alternative selves can affect us in several ways that are as follows:

- (i) The image of our future self can act as a motivator to work hard, study, overcome bad habits, etc., because an ideal self exists before us.
- (ii) Often we see ourselves as we wish to be, while other people see us as we really are, at the present time. The attempt must be to bring the two as close as possible.
- (iii) There are individual differences among people in terms of how they view the future self. Some are optimists and see positive changes in the future; while the pessimists see little or no change or view the future in negative terms.

Individuals need to recognize that everyone has several possible selves and this is an accurate way to conceive of themselves.

Check Your Progress

- 4. Can the ‘self’ be altered?
- 5. Give another name for the self-concept.
- 6. What is schema?

9.4 EMOTIONS AND TEMPERAMENT THROUGHOUT LIFESPAN DEVELOPMENT

Emotions and temperament refer to the internal feelings exhibited via external behaviours. Happiness is a feeling felt within a person. The smile that is born out of a feeling of happiness is a behaviour that is exhibited externally or visible from the outside. As human beings grow and develop, they not only experience emotions in different ways but also exhibit emotions in different ways.

What are the triggers that result in emotions? Emotions can be caused by events, both internal and external. For instance, if there is an external event, such

as an exam coming up, it is natural for the person to feel nervous and anxious. Sometimes human beings are not sure why they are feeling a certain way. Emotions can definitely be mixed, unclear or confusing. This happens when there are disturbances in the level of hormones or blood sugar in the body.

People experience innumerable emotions — overpowering joy to hopelessness, anguish and so many feelings that lie between joy and sadness.

Infants communicate primarily by crying. That is all they know how to do. They cry to let the mother or father know that they are hungry or need a change of diaper or are in pain. They may not really know what hunger or pain is, but their cries will tell their caregivers that it is time to feed them.

As babies grow older, they are able to smile. They communicate through cries and smiles. In fact, their cries and smiles achieve a lot for them than simply fulfilling their needs. They help them establish a connect with their caregivers. Such bonding is indispensable to growth and development.

For infants, emotional expressions such as crying come automatically. They are beyond their control. But as they grow their brain develops and they are able to form stronger bonds. They are also able to regulate or control their emotions.

As babies grow up to become young children, they become self-aware. They realise that they are individuals, different from the others. This is due to the continuous development of the brain and due to the various social relationships. Language also develops and their ability to communicate is enhanced greatly.

Emotions fluctuate fast among adolescents, which is why parents today often feel that taking care of adolescents is the greatest challenge ever. They experience so many varying emotions that their parents also get dragged into the turmoil. Not surprisingly, parents today expect and brace themselves for the ‘stress’ that is inevitable in adolescence. They are prepared when their adolescent children over-react to situations and comments. Developmental experts consider this as the adolescents’ (who are turning into youth) mechanism to cope with a bigger range of unfamiliar and new situations.

Teenagers have to master the art of responding to new and strange situations while also dealing with the demands on their physical, mental, and emotional resources. This leads to stress. However, not all human beings experience stress and those do also experience it at different levels. The capability to handle stress is impacted by several factors. Some human beings are oversensitive to stress, because of their genetic makeup. Some others are able to handle better because of the environment in which they are brought up, the influence of the family and community. A good friends circle, for instance, can help alleviate a person’s stress.

Temperament can affect our response to stress. Temperament is the genetically-determined inclination to behave in a specific way. Each human being

NOTES

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is born with temperamental differences that can be observed at birth. For instance, certain babies are more sensitive to stress and react sharply to it as compared to others. For instance, some babies react strongly when a torch is shone in their eyes or if a balloon is burst close to them. Such babies will also take more time to regain their composure or calm down after being exposed to bright light or loud noise. It can be a challenge to comfort or pacify them.

Some babies will either shut their eyes to bright light or turn away their face. That is their way of dealing with stress. They are easier to calm down, soothe and comfort. Therefore, adolescents who are born with oversensitive temperaments will be likely to find it hard to handle stressful situations. They will need help and guidance to learn to effectively cope with and manage stress.

Emotions in Adulthood

During adulthood human beings are able to regulate their emotions better. Older adults have exhibit lesser negative emotions than younger adults because the former are more stable than youngsters in terms of their emotions. They are able to distinguish between good and bad emotions and are able to pay more heed to the good than the bad. They are also capable of recovering from negative emotions faster. Clearly, adults are more mature and therefore able to handle emotions better.

However, older adults are also known to exhibit stronger reactions and emotions than youngsters in similar situations. For instance, older adults will be more affected by injustice and loss than youngsters.

In situations that arouse strong emotions, older adults are often unable to regulate their emotions as well as youngsters.

As human beings age, their emotions undergo complex changes. It would be wrong to say that older adults are more tranquil and emotionally well off. Not only are there strong emotions, but even reactions to significant life events tend to increase with age.

Check Your Progress

- 7. What is the difference between a smile and happiness?
- 8. Why is adolescence a challenging phase?
- 9. What is temperament?

9.5 SOCIALISATION

Various thinkers have tried to define social development in the following ways:

1. Freeman and Showel (1940) wrote, ‘Social development is the process of learning to conform to group standards’.

2. LD Crow and A Crow (1944) wrote, 'Social development means acquisition of the ability to behave in accordance with social expectations'.
3. Herbart Sorenson (1948) thought, 'By social growth and development we mean increasing ability to get along well with oneself and others'.
4. James Drever (1952) stated, 'Socialization (social development) is a process by which the individual is adapted to his social environment (by attaining social conformity), and becomes a recognized, cooperating and efficient member of it'.
5. E B Hurlock (1956) noted, 'Social development means the attaining of maturity in social setting'.
6. H E Garret (1968) was of the view that, 'Socialization or social development is the process whereby the biological individual is converted into a human person'.

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Characteristics of Social Development

From the above-mentioned definitions we derive the following characteristics of social development:

1. Social development begins with the infants' first contact with other people.
2. Social development continues throughout life.
3. Social development is the net result of the child's constant interaction with his social environment.
4. Social development helps in learning and acquiring social qualities of character.
5. Social development enables the child to adjust himself to his social environment and to maintain social relationships.

According to Gessel, bright children accelerate in social development while dull children are retarded in their progress towards social maturity.

Social Behaviour of the Pre-School Child

The child at this stage is ready to expand his social contacts. By the age of two years, he can obey certain commands given to him. He calls attention of other persons to objects he feels interested in. He is more or less self-centred. The pre-school child is active. A pre-school child has usually one or two friends. He plays through only for short intervals. Race, caste, colour or sex or social and economic status have no effect in the selection of friends at this stage. Nursery school experiences contribute in acquiring acceptable social habits.

Social Behaviour of the Elementary School Child

By the time a child enters school, he wants to have many friends. At this stage, he is not just satisfied by the company of his parents. He is interested in the play

NOTES

activities of his group, of the same age and sex. However, quarrels are also common among **friends**. Boys of this stage tend to be more aggressive. **Girls are** more frequently engaged in bickering. Bullying and teasing are more common. Children are interested in group activities and team work. Team **games** become more interesting than individual work. The social behaviour of **the child is** greatly influenced by **the** social environment in which **he** lives.

Social development of the child during the early stages of schooling

1. The period is marked by a greater degree of social awareness.
2. There is a great expansion of child's social world.
3. A child tries to be independent of his parents and other elders.
4. A child becomes an active member of a peer group
5. There is a sort of segregation among boys and girls of the same age.
6. Up to the end of the stage of childhood, i.e., 11th or 12th year, the child enters the peak of 'gang age'. There is increasing loyalty towards his own gang and conflict with other gangs. The gang life develops many good as well as bad social qualities in the child.

Hindrances in the social development of the child

1. Social evils like untouchability and caste prejudices, etc.
2. Coeducation
3. Language barriers
4. Miscellaneous factors like income, occupations and religion of the family.

Factors affecting social development of the child

Family: Among the various social groups, the family makes the first and the most significant influence on the social development of the child. It provides the hereditary transmission of basic potential for his development. It also provides environmental conditions and personal relationship Parent-child relations have various dimensions of interaction. As such, they remain basic for social development of the child. Parent-child relationships determine behavioural adjustment of the child in the family as well as outside.

Religion: Like home, religion has long been regarded as a primary social institution. Religion plays a dominant role in the social development of the child.

Peer Groups: The child is introduced to the social world outside his family, mainly for play purposes. The peer groups satisfy various needs of the children like acceptance, achievement, affection, approval, belongingness, fame, recognition, expression of thoughts and opinions etc. According to AT Jershid (1947), peer association is a meaningful process through which the child changes with his age group into youth and adulthood.

School: The school life plays an important role in the social development of the child. Its curriculum, co-curricular activities and teacher's influence have a great bearing on the social development of the child.

Community and Neighbourhood: The environment prevailing in the community has a great influence on the social development of the child.

Mass Media: Agencies like cinema, newspapers, radio and television, etc., also play a vital role in bringing about social changes in children.

Bodily Structure and Health: A healthy child has more ability and strength to make himself adjust in the challenging social settings. A child with poor health or any physical deformity or defect develops feeling of inferiority as well as insecurity in social settings.

Intelligence: The more intelligent a person is, the more chances of his social adjustment.

Emotional Development: Emotional development of the child bears a positive correlation with his social development. Emotional adjustability is one of the very important elements of social adjustment.

Influence of culture on social development

A child's social behaviour is regulated and influenced by the culture of the society he lives in. The ways of behaving by the people of one generation, pass on from generation to generation. Our sanskaras shape our outlook and finally, personality. There are two ways in which the behaviour patterns of culture are transmitted to the next generation, (a) Directly and formally as in educational programmes at various stages of education and (b) Informally through interactions between parents and their children which occur in the course of bringing up children. These interactions include the parent's expression of attitudes, beliefs, interests and values, etc. Some of the informal social development takes place through interactions with relatives, neighbours, peer groups and teachers.

Educational implications of social development

A noted French sociologist Emile Durkheim defines education as a socialization of the younger generation,

‘Education is the influence exercised by adult generations on those that are not yet ready for social life. Its object is to arouse and to develop in the child a certain number of physical, intellectual and moral traits that are demanded of him by both the political society as a whole and the special milieu for which he is specially destined, more briefly, education is a socialization of the young generation. Education is the means by which every society prepares, within their children, the essential conditions of its very existence. It is idle to think that we can rear our children as we wish. There are customs which we are bound to conform: if we flout them too severely, they take their vengeance on our children’.

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Check Your Progress

10. What is the definition of social development as given by Freeman and Showel?
11. State two characteristics of social development.
12. What is gang age?
13. State two factors that affect the social development of a child.
14. What is peer association?
15. How is education defined?

9.6 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. Emotions play an important role in life and contribute to the personal and social development of an individual. Continuous emotional disturbance affects the individual's growth and development and gives rise to mental, physical, social and other problems. It also tends to hamper intellectual training. On the other hand, an emotionally stable individual leads a happy, healthy and peaceful life.
2. The 14 instincts pointed out by McDougall are: acquisition, appeal, construction, curiosity, flight/escape, food seeking, gregariousness, laughter, parental, combat, repulsion, self-assertion, sexual and submission.
3. Emotions provide energy to an individual to face a particular situation, and emotions work as motivators of our behaviour.
4. Time and experiences can alter self. Sometimes, traumatic experiences can also lead to such an alternation in the self, such as the death of a dear one.
5. Self-concept is also referred to as self-perspective or self-construction. It is a multi-dimensional construct that refers to an individual's perception of 'self' in relation to any number of characteristics, such as academics (and non-academics), gender roles and sexuality, racial identity, and many others.
6. Schema is the cognitive framework that holds together the self. It guides the processing of information about ourselves.
7. While happiness is felt from within a person, a smile is the external or outward exhibition of that feeling of happiness.
8. Emotional fluctuation takes place rapidly in adolescents. Also, they experience a wide range of emotions during this age, which makes it difficult for the adolescents themselves to handle, and for the parents to manage.

9. Temperament is the genetically-determined inclination to behave in a specific way. Each human being is born with temperamental differences that can be observed at birth.
10. Freeman and Showel (1940) wrote, 'Social development is the process of learning to conform to group standards.'
11. Social development begins with the infants' first contact with other people, and continues throughout life. Social development is the net result of the child's constant interaction with his social environment.
12. The age of 11 to 12 years, where the children feel increasing loyalty towards their own gangs and conflict with other gangs, is called gang age.
13. The child's family and religion have a significant impact on his development.
14. Peer association, according to AT Jershid, is a meaningful process through which the child changes with his age group into youth and adulthood.
15. Education is a socialisation of the younger generation. It is the influence exercised by adult generations on those that are not yet ready for social life.

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9.7 SUMMARY

- Emotions play an important role in life and contribute to the personal and social development of an individual.
- Emotionally stable individuals lead happy, healthy and peaceful lives.
- Emotional experiences are associated with some instincts or biological drives, and emotions, in general, are the product of perception.
- Emotions provide energy to an individual to face a particular situation.
- 'Self-concept', also referred to as self-perspective or self-construction, is a multi-dimensional construct that refers to an individual's perception of 'self' in relation to any number of characteristics, such as academics (and non-academics), gender roles and sexuality, racial identity, and many others.
- Self is a highly complex, but unified image of an individual. The self is held together by a cognitive framework called the schema.
- Emotions and temperament refer to the internal feelings exhibited via external behaviours. Happiness is a feeling felt within a person.
- People experience innumerable emotions — overpowering joy to hopelessness, anguish and so many feelings that lie between joy and sadness.
- For infants, emotional expressions such as crying come automatically. They are beyond their control. But as they grow their brain develops and they are able to form stronger bonds. They are also able to regulate or control their emotions.

NOTES

- Teenagers have to master the art of responding to new and strange situations while also dealing with the demands on their physical, mental, and emotional resources, which leads to stress.
- A good circle of friends can help alleviate a person's stress.
- Therefore, adolescents who are born with oversensitive temperaments will be likely to find it hard to handle stressful situations.
- Adults are more mature and therefore able to handle emotions better. But older adults are also known to exhibit stronger reactions and emotions than youngsters in similar situations.
- Social development begins with the infants' first contact with other people and continues throughout life.
- Up to the end of the stage of childhood, i.e., 11th or 12th year, the child enters the peak of 'gang age'. There is increasing loyalty towards his own gang and conflict with other gangs. The gang life develops many good as well as bad social qualities in the child.
- A child's social behaviour is regulated and influenced by the culture of the society he lives in. The ways of behaving by the people of one generation, pass on from generation to generation.
- 'Education is the influence exercised by adult generations on those that are not yet ready for social life. Its object is to arouse and to develop in the child a certain number of physical, intellectual and moral traits that are demanded of him by both the political society as a whole and the special milieu for which he is specially destined, more briefly, education is a socialization of the young generation.

9.8 KEY WORDS

- **Etymology:** The study of the origin and history of words.
- **Conative:** Related to the mental faculty of purpose, desire, or will to perform an action; volition.
- **Temporal:** Relating to worldly as opposed to spiritual affairs; secular.
- **Temperament:** A person's or animal's nature, especially as it permanently affects their behaviour.

9.9 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short-Answer Questions

1. Define 'emotion'.
2. What are the aspects of instinctive behaviour?

3. What is the concept of alternative selves?
4. What are emotions and temperament?
5. Define social development.
6. State a few ways in which the social behaviour of a pre-school child differs from that of the elementary school child.
7. How does the family affect a child's social development?
8. What are the educational implications of social development?

NOTES

Long-Answer Questions

1. Write a note on the characteristics of emotions.
2. What is the concept of the self and how is it significant?
3. How do emotions change from infancy to adulthood? Why?
4. Discuss the characteristics of social development.
5. Explain the social development of a child in the early days of schooling.

9.10 FURTHER READINGS

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UNIT 10 SELF-DEVELOPMENT

NOTES

Structure

- 10.0 Introduction
- 10.1 Objectives
- 10.2 Identity Crisis in Adolescence
 - 10.2.1 Relationship with Parents
 - 10.2.2 Relationship with Peers
 - 10.2.3 Relationship with Life Partner
 - 10.2.4 Relationship with Aging Parents
- 10.3 Answers to Check Your Progress Questions
- 10.4 Summary
- 10.5 Key Words
- 10.6 Self Assessment Questions and Exercises
- 10.7 Further Readings

10.0 INTRODUCTION

Adolescence is a turbulent period in a human being's life. It is that phase of life between childhood and adulthood that sees an individual undergoing a lot of changes, physically and mentally.

In this unit, you will learn why adolescents are such a confused, curious and often aggressive lot. This unit will also discuss the relationships of adolescents with peers, parents and life partners. You will also become familiar with the ways in which a sound bond can be established by adult children with their ageing parents.

10.1 OBJECTIVES

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

- Understand why identity crisis happens in adolescents
- Explain ways for adult children to establish bonds with ageing parents
- List the relationship that adolescents share with their parents and the conflicts that arise
- Discuss the significance of establishing a good relationship with life partners
- Explain how relationship with peers affects self-development in adolescents

10.2 IDENTITY CRISIS IN ADOLESCENCE

Adolescence is the period of life between childhood and adulthood, usually the age group of 11–19 year olds. This period starts with the beginnings of sexual

maturity and terminates with being an independent adult. Many developmental issues occur during an adolescent's route to adulthood. We can also say that adolescence is that phase of life when an individual starts separating from parents with the goal of being independent (adult). During this phase, arguments between teens and parents can become more intense. Adolescence is usually marked with less parental influence and greater peer influence. Thus, information provided by parents may be disregarded.

According to the developmental theorist, Erik Erikson, adolescents typically search for their identities. For instance, trying out different clothing styles or preferring peer group company over the family, and living in the 'reel' life rather than the 'real' life. This role confusion typically gets resolved by forming a single identity, but some never seem to find themselves. Some teens do not go through this role confusion, as they adopt their parents' standards and values. As they sort out who they are, teens usually define others in relation to themselves. Adolescents may have difficulty realizing how their behaviours impact themselves or others. They typically consider themselves to be invulnerable to anything bad happening to them, which may lead to risky behaviours.

Intellectual development is the pursuit of activities that involves a higher degree of mental functioning. The extent of intellectual development is indicative of an adolescent's mental health. Any study of intellectual development is incomplete without taking into consideration dimensions of moral development. Moral development is the understanding of morality and how every individual is subject to it starting from infancy through adulthood. Moreover, no interrogation in the field of psychology is complete without understanding social development. Perhaps one of the most difficult to define, social development is that phenomenon which shapes different patterns of social behaviour. The degree of allegiance that an individual shows towards a particular group is important as it will help determine the level of social comfort (or discomfort). Pro-social behaviour and anti-social behaviour are two dominant behaviour patterns that emerge out of a study of the development of social behaviour.

10.2.1 Relationship with Parents

Conflicts between parents and their children increases as children grow up to become adolescents. While such conflicts are bound to happen, they are a cause of unlimited worry for both parents and children because both seek peace. Adolescents may resent the strictness and rigidity of their parents. They may hate being controlled and may find their parents rather irrational. Parents may not be able to digest the fact that their once affectionate, obedient children have all at once turned disobedient and rebellious. Misunderstandings keep growing on the part of the parents as well as the children and this may make them grow apart.

In most families, the conflict is more likely to be about choice of dresses/clothing, music, permission to be out late, and the choice of means of entertain,

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leisure and so on rather than issues pertaining to religion and core values. Surprisingly, conflicts are rarely about such significant matters, such as drug abuse by adolescents and juvenile delinquency. As per estimates, approx. five million American families (approx. 20 per cent), parents and adolescents are involved in extreme, long-drawn, unhealthy conflict. In its most serious form, this extremely stressful environment is linked to a number of negative outcomes, including juvenile delinquency, moving away from home, increased school dropout rates, unplanned pregnancy, membership in religious cults, and drug abuse (Steinberg & Morris, 2001). In general, conflict increases in early adolescence, reaches its height in mid-adolescence (ages 14–16), and declines in late adolescence (ages 17–18).

Various changes that define adolescence can result in conflict between parents and their children. Adolescents have an immense capacity for logical reasoning, which urges them to question things, and also demand reasons for things they once accepted blindly without any questioning. They tend to get into arguments because their critical thinking ability does not allow them to accept whatever their parents say blindly. Their enhanced cognitive abilities and sense of idealism forces them to point out logical flaws and inconsistencies in parents' positions and actions. Unlike in the good old day, adolescents today refuse to submit to their parents and do not see them as unquestioned authorities. They admit that other opinions also have worth and they are learning the way to not only form opinions but also state their own views firmly. They are inclined towards ego-centrism, as a result of which they become oversensitive to even the most casual of remarks or comments made by their parents.

Puberty brings with it dramatic changes, which parents find it rather difficult to understand. Also, it is difficult for parents to predict what the future behaviour of their adolescents would be like on the basis of their present behaviour. For instance, adolescent children who seemed to be obedient in the past may appear less cooperative and even highly disobedient in the absence of a satisfactory argument or explanation. Some parents may consider this behaviour in their wards as rebellious and oppositional. They may react to this perceived disobedience by pressurising them for obedience in the future. This response may be seen by the adolescents as a threat to their independence, at a time when they really seek more of it.

Changes that take place in the environment of adolescents beyond the family may also give rise to new disturbances and stress at home. The changeover from elementary to middle school and further to high school may cause a lot of stress at a time when it is keenly awaited. These transitions mean that young people move from a social setting wherein they are the senior-most and most able / competent to a scenario wherein they end up being the smallest physically, with minimum experience, a lower status, and with lesser privileges. Their academic expectations and social arrangements also require alteration. The importance of peers increases and they become inclined towards romance. All these changes lead to new stress-

giving situations, some of which lead back to the parents: “Everybody wears clothes like this.” “Why can’t I go with Jeff in his car?”

Although not necessarily the cause of adolescent-parent conflict, adolescents’ relationships with their parents are definitely influenced by the style of parenting. Research has revealed that children with authoritative parents, who are also warm and firm, are socially more competent and mature than children raised by strict, indifferent, authoritarian, neglectful, caregivers or parents (Baumrind, 1991). Authoritative parenting combines consistent parental responsiveness and demandingness, which is associated with positive emotional adjustment, higher school performance, and overall maturity in childhood and adolescence. In contrast, parents whose style is not authoritative may have to face different kinds of challenges when their children enter the stage of adolescence (Steinberg & Morris, 2001).

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10.2.2 Relationship with Peers

Social Changes

At this stage, social changes are reflected in the influence of peer group, new values in selection of friends, new values in social acceptance and rejection, and new values in selection of leaders.

(i) Increased Peer Influence

According to Horrocks and Benimoff (1970), “Peer group is the adolescent’s real world which provides him a stage upon which to try out himself and others. It is in the peer group that he continues to formulate and revise his concept of himself, it is here that he is evaluated by others who are presumably his equal and who are unable to impose upon him the adult world sanctions from which he is typically struggling to free himself. The peer group offers the adolescent a world in which he may associate in a climate where the values that count are those that are set, not by adults, but by others of his own age. Thus, it is in the society of his peers that the adolescent finds a support for his efforts at emancipation and it is there that he can find a world that enables him to assume leadership of his worth as a person is such that can assert leadership. In addition, of course, the peer group is the major recreational outlet of the teenager.

For all these reasons it would seem of vital importance to the adolescent that his peer group contains a certain number of friends who can accept him and who he can depend.”

(ii) Changes in the Area of Heterosexual Relationships

An adolescent begins to prefer the company of members of the opposite sex.

(iii) Social Activities at their Peak

Social activities, whether with members of the same sex with the opposite sex, reach their peak during this stage.

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(iv) New values in Selection of Friends

According to T P Joseph (1969), “an adolescent wants as a friend someone to be trusted, someone to talk to, someone who is dependable.” While interest in friendship with the opposite sex becomes increasingly stronger to the young adolescent, popularity means having a large number of friends.

Following are the chief characteristics of social groupings of the adolescence period:

- (a) The adolescent usually has two or three close friends.
- (b) Close friends have a marked influence on one another.
- (c) Close friends may also quarrel occasionally.
- (d) Cliques are usually made up of groups of close friends.
- (e) Dating grows.
- (f) Groups are also be formed which indulge in anti-social behaviour.
- (g) Adolescents expect their leaders to be more energetic, resourceful, emotionally stable and extroverted than others.

D Ausubel (1956) observed, “The most important cause of youth conflict at present is the preservation of parents’ attitude that interferes with the adolescent’s greatly expanded need for volitional independence.”

10.2.3 Relationship with Life Partner

Many factors have to be considered while choosing a life partner and establishing a relationship with him or her. In such relationships, people normally select a partner with whom they can conveniently strike a conversation with; with whom they share common interests; to whom they are physically attracted, and so on. While deciding on a life partner, the individual is actually choosing a person with whom she or he wishes to spend her or his life. Therefore, the chosen person should be one with whom she or he would love to do things together with. Another important factor is trust. Trust between the life partners generally comes from a contented and happy life partner relationship.

10.2.4 Relationship with Aging Parents

It is common for adult children to find it difficult to handle their elderly parents mainly because the parent-child relationship is reversed. Children rely on their parents when they are young, to tell them right from wrong and also to help them make the right decisions. They also turn to their parents for protection. But when these very children grow older, their parents and their ways/opinions seem “different” to them. They realise that now their parents need their support and guidance. The children end up being parents to their own parents when they grow up. The biggest challenge with this reversal of parenting is handling and nurturing the relationship such that it becomes a positive experience.

Focus on the positive

When parents realise that their own children have grown up, become adults and have drifted away to establish their own relationships with their own children, negativities may arise. However, it is important for both the aging parents and their adult children to decrease the negative factors/traits and concentrate only on the positive and healthy features of the relationship. Along with patience and understanding learning the way to maintain a healthy, respectful relationship with your aging parents is quite possible.

Maintaining a healthy relationship

For adult children to have a healthy relationship with their ageing parents, it is important to first accept that both parties are having to face new challenges. These will most certainly affect the relationship between them. But what is important is that despite these changes, both sides have to put in the required effort to establish a bond with maturity and sensitivity. Combining the memories created in all these years with mutual respect and shared interests, can be the first step to establishing a more meaningful bond with your parents. Some healthy ways to create a mature and sensible relationship with parents and strike a bond may include:

- Reviving old memories and common interests
- Honestly discussing each other's expectations from the relationship
- Indulging in common activities
- Expecting and encouraging independence for the children as well as their parents.

Despite the fact that aggression rises in case of parent-children relationships, the relationship continues to be one of the longest lasting ones. Regardless of the feelings of tension, uncertainty and annoyance, the bond between aging parents and adult children is usually supportive and positive and rarely negative.

NOTES

Check Your Progress

1. What is adolescence?
2. What is the main crisis faced by adolescents?
3. What is the status of conflicts in adolescence?
4. What are the reasons for stress at home during adolescence?
5. What is the role of peer influence?
6. List two characteristics of social groupings during the adolescent period.
7. What is the main characteristic sought after in a life partner?
8. Suggest one way in which adult children can establish a bond with ageing parents.

10.3 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

NOTES

1. Adolescence is the period of life between childhood and adulthood, usually the age group of 11–19 year olds.
2. Adolescents typically seek their identities. They try out different clothing styles, prefer the company of their peer group rather than their own families, they live in the ‘reel’ life rather than the ‘real’ life. While some are able to find that identity, others never do.
3. In general, conflict increases in early adolescence, reaches its height in mid-adolescence (ages 14–16), and declines in late adolescence (ages 17–18).
4. Changes that take place in the environment of adolescents beyond the family may also give rise to new disturbances and stress at home. The changeover from elementary to middle school and further to high school may cause a lot of stress at a time when it is keenly awaited.
5. It is in the peer group that adolescents continue to formulate and revise their concept of themselves. It is here that they are evaluated by others who are presumably their equal and who are unable to impose upon them the adult world sanctions from which they are typically struggling to free themselves.
6. The chief characteristics of social groupings of the adolescence period are:
 - (i) Close friends have a marked influence on one another.
 - (ii) Close friends may also quarrel occasionally
7. A life partner should be a person who can be trust and with whom a conversation can be struck easily.
8. One healthy way to create a mature and sensible relationship with parents and strike a bond is by reviving old memories and common interests.

10.4 SUMMARY

- Adolescence begins with the beginnings of sexual maturity and terminates with being an independent adult.
- Adolescents may have difficulty realizing how their behaviours impact themselves or others. They typically consider themselves to be invulnerable to anything bad happening to them, which may lead to risky behaviours.
- Conflicts between parents and their children increases as children grow up to become adolescents.

- In most families, the conflict is more likely to be about choice of dresses/ clothing, music, permission to be out late, and the choice of means of entertain, leisure and so on rather than issues pertaining to religion and core values.
- As per estimates, approx. five million American families (approx. 20 per cent), parents and adolescents are involved in extreme, long-drawn, unhealthy conflict.
- Various changes that define adolescence can result in conflict between parents and their children.
- Puberty brings with it dramatic changes, which parents find it rather difficult to understand.
- Changes that take place in the environment of adolescents beyond the family may also give rise to new disturbances and stress at home.
- Authoritative parenting combines consistent parental responsiveness and demandingness, which is associated with positive emotional adjustment, higher school performance, and overall maturity in childhood and adolescence.
- In adolescence, social changes are reflected in the influence of peer group, new values in selection of friends, new values in social acceptance and rejection, and new values in selection of leaders.
- The adolescent usually has two or three close friends.
- Trust between the life partners generally comes from a contented and happy life partner relationship.
- Children rely on their parents when they are young, to tell them right from wrong and also to help them make the right decisions, but these children end up being parents to their own parents when they grow up.
- When parents realise that their own children have grown up, become adults and have drifted away to establish their own relationships with their own children, negativities may arise.
- For adult children to have a healthy relationship with their ageing parents, it is important to first accept that both parties are having to face new challenges.

NOTES

10.5 KEY WORDS

- **Aggression:** Feelings of anger or antipathy resulting in hostile or violent behaviour; readiness to attack or confront.

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- **Stress:** A state of mental or emotional strain or tension resulting from adverse or demanding circumstances.
- **Volitional:** Acting as a result of a decision or choice; done because someone has decided or chosen to do it.

10.6 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short-Answer Questions

1. Why do adolescents face an identity crisis?
2. Give reasons for parent-child conflict.
3. Why does peer influence in adolescents?
4. What are the characteristics necessary in a life partner?

Long-Answer Questions

1. Adolescents have a questioning mind. How does this affect their relationship with their parents? Elaborate.
2. Discuss the changes in the environment that affect adolescents' behaviour and attitude.
3. Explain the role of the peer group in adolescent behaviour.
4. List the chief characteristics of social groups of the adolescents.
5. How can a mature and positive bond be established between adult children and their parents?

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Self-Development

NOTES

UNIT 11 PUBERTY AND ADOLESCENTS

NOTES

Structure

- 11.0 Introduction
- 11.1 Objectives
- 11.2 Biological and Mental Changes
- 11.3 Erikson's Views
 - 11.3.1 James Marcia's Views
- 11.4 Adolescents Relationship with Family, Peers and Adult Society
- 11.5 Answers to Check Your Progress Questions
- 11.6 Summary
- 11.7 Key Words
- 11.8 Self Assessment Questions and Exercises
- 11.9 Further Readings

11.0 INTRODUCTION

The teenage years are also called adolescence. Adolescence is a time for growth spurts and puberty changes. An adolescent may grow several inches in several months followed by a period of very slow growth, then have another growth spurt. Changes with puberty (sexual maturation) may occur gradually or several signs may become visible at the same time.

There is a great amount of variation in the rate of changes that may occur. Some teenagers may experience these signs of maturity sooner or later than others.

11.1 OBJECTIVES

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

- Describe the meaning of biological and mental changes
- Analyse the growth spurt and sexual maturation changes
- Explain Erikson and Marcia's views on the different stages of development
- Discuss adolescents relationship with family, peers and adult society

11.2 BIOLOGICAL AND MENTAL CHANGES

Physiological growth refers to the growth and development of physical as well as mental features. Development of the cognitive, emotional, intellectual and social skills is as important as the development of different body parts. The simultaneous

growths of physical attributes along with mental abilities are both signifiers of physiological development.

Sexual Maturation and Growth Spurt

Adolescence starts with puberty. Usually, puberty starts between ages 10–13 in girls and 12–15 in boys. During puberty, your body will grow faster than at any other time in your life, except when you were a baby. A boy or a girl at birth and before puberty can be distinguished from the sex organs. Sex organs are necessary for reproduction, therefore, they are called the primary sexual characteristics. At the onset of puberty, physical changes and development that are not directly part of the reproductive system, but distinguish the male from the female are called secondary sexual characteristics. The changes at puberty can be studied under three headings: (1) development of secondary sexual characteristics, (2) development of sex organs, and (3) intellectual, emotional and psychological development.

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1. Development of secondary sexual characteristics

The development of secondary sexual characteristics can be discussed under the following headings:

- **Increase in height:** The height increases from birth to the end of puberty. During adolescence, the height increases by 15–20 per cent. The height depends on the genes that you have inherited from parents. Right kind of diet, exercise and general health during these years also contribute to height.
- **Increase in weight:** During adolescence, the weight of a teenager almost doubles as the amount of muscles, fat and bones in their bodies change.
- **Shoulders and chest:** During this stage, the boys develop broad shoulders and wider chests due to development of bones and muscles. This growth spurt might cause stretch marks on these areas.
- **Development of muscles:** During puberty, the muscles of the body increase in mass and strength, in both boys and girls.
- **Body hair pattern:** Both, boys and girls, grow a body hair pattern in the armpits (under the arms), in the pubic area (region above the thighs) and on the arms and legs. Boys also begin to grow facial hair, that is, moustache and beard and hair on chest.
- **Voice change:** Both girls and boys are affected by voice changes during their adolescence. In girls, the change in their voice is hardly noticeable because it becomes only slightly deeper. As compared to boys they have a high-pitched voice. In boys, changes that occur in the larynx cause their voices to deepen. The vocal cords of the larynx grow thicker and longer and when they vibrate the voices sound lower and deep. The larynx sticks out as a prominent Adam's apple in males.

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- **Distribution of fat tissue:** The distribution of fat in the body changes during adolescence. Boys add more fat to their trunks than to their limbs, whereas in adolescent girls there is increased distribution of fat in both. Among the limbs there is more fat added to their legs than to their arms as a result their waist becomes thin and the hips become more rounded. Adequate physical exercise should, therefore, be a part of daily life of an adolescent.

- **Increased activity of sweat and sebaceous glands:** During puberty, the sweat glands of both boys and girls become more active, especially those present in the armpits and groin and on the palms of the hands and soles of the feet. When the sweat comes in contact with bacteria on the skin, it can produce an odour. The body odour (or BO as people call it) may be stronger in some people than others. Taking bath or shower daily and looking after one's personal hygiene is absolutely essential.

Sebaceous glands secrete an oily substance called 'sebum' onto the surface of the skin. These are especially common on the face, back and chest. During puberty, the secretion of sebaceous glands increases due to which the skin of these body regions tends to be oily.

- **Acne:** Acne is a common problem among adolescents. It appears in boys and girls around the beginning of puberty. The hormonal changes that are happening inside your body cause the sebaceous (oil) glands to become more active. When the oil glands get infected with bacteria an outbreak of acne takes place. Most teenagers get acne on the face, neck, upper back, upper chest, shoulders and back.

- **Breast development:** The beginning of breast development is one of the earliest signs of puberty in girls. Breast is made up of fatty tissue and milk glands with ducts. The milk glands produce milk for the newborn child. Some adolescent boys also have breast development which is temporary. The swelling usually goes down within a year or so. In overweight boys, fat may also give the breasts an enlarged appearance.

2. Development of sex organs

During puberty in boys, the penis, the testes and the scrotum continue to grow and develop completely. Testes begin to produce sperms. In girls, the ovaries enlarge, eggs begin to mature and menstruation begins. Menstruation is a major stage of puberty in girls. It marks the stage when ovulation begins, that is, the ovaries begin to release mature egg cells.

What triggers the changes during adolescence?

The changes that occur during adolescence are initiated by hormones. You have read about the two hormones—estrogen, produced by the ovaries and testosterone, produced by the testes. At the onset of puberty, these hormones stimulate the growth and function of various organs like the bones, muscles, skin, breasts, brain

and the reproductive organs and cause physiological changes. The secretion of these hormones is controlled by another hormone secreted into the bloodstream by the pituitary gland located in the brain. When this hormone from the pituitary gland stimulates the gonads (the ovaries and testes), they in turn secrete hormones that trigger off the changes in the body.

Hormones are chemical substances that are secreted by glands. Exocrine glands or duct glands secrete their products into ducts that open on to a surface. Examples include the sweat glands, sebaceous glands, salivary glands, digestive glands such as pancreas and mammary glands. Endocrine glands or ductless glands secrete their hormones directly into the bloodstream rather than through a duct. Examples include the pituitary gland, ovaries and testes.

The endocrine system is a system of glands that involves the release of specific chemical messengers called hormones into the bloodstream. Table 11.1 shows the position of some other endocrine glands which produce hormones other than sex hormones.

Let us learn about one hormone each, secreted by these endocrine glands and the diseases caused by an imbalance in the hormone levels. A hormonal imbalance occurs when secretion levels are not what they need to be.

Table 11.1 Some Glands of the Endocrine System

S.No.	Name of the hormone and the endocrine gland which secretes it	Function of the hormone	Disease caused by imbalance in the hormone levels
1.	Growth hormone by pituitary gland	Promotes normal growth of bones, muscles and other organs	Decreased levels of growth hormone cause decrease in height in children and adolescents. Increased levels may cause a condition called gigantism.
2.	Thyroxine by thyroid gland	Controls the rate of metabolism. Iodine is necessary for the synthesis of thyroxine.	Deficiency of iodine in the diet causes goitre which is a swelling of the thyroid gland.
3.	Adrenalin by adrenal glands	Released in the body to cope up with anxiety, vigorous exercise or fear.	The body is unable to adjust to stress caused due to anger, worry, embarrassment or vigorous activity.
4.	Insulin by pancreas	Controls the level of the glucose in the blood. Insulin moves glucose into the cells to produce energy.	When there is insufficiency of insulin, glucose cannot get into the cells to produce energy. This leads to build up of excess glucose in the bloodstream. Such a condition is known as diabetes.

3. Intellectual, emotional and psychological development

Another area of physical development is in the brain, especially the frontal lobe, which is the area for impulse control, judgment, and the ability to plan. The frontal lobe develops during the teens and early 20s. An undeveloped frontal lobe helps explain impulsiveness, risky behaviours, and moodiness among adolescents. In mid to late adolescence, young people often feel the need to establish their sexual identity by becoming comfortable with their body and sexual feelings. Through romantic friendships, dating, and experimenting, adolescents learn to express and receive intimate or sexual advances.

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As an adolescent boy/girl grows, he/she develops problem-solving skills and could be a part of decision-making in school or at home. He/She would be able to analyse information and experiences by critical thinking and handle a new situation through creative thinking. The adolescent boy/girl would indulge in planning and goal setting for long-term and short-term tasks. Yet, the same hormones that cause changes in the appearance and intellect can also affect his/her emotions. One may feel awkward and self-conscious at times, confused and insecure at other times. All these are normal feelings and the adolescent boy/girl gradually gets used to such emotions and gets over them.

As discussed earlier, adolescents become stronger and more independent before they have developed good decision-making skills. A strong need for peer approval may entice a teenager to try dangerous feats, or take part in risk-taking behaviours. So for instance, motor vehicle safety should be stressed, focusing on the roles of the driver/passenger/pedestrian, the risks of substance abuse, and nowadays the importance of using protection (condoms) during a sexual act. It has been a common observation that adolescents are at increased risk for depression and potential suicide attempts, because of pressures and conflicts in their family, school or social organizations, peer groups, and intimate relationships.

Development of Identity

The child continues to grow physically, cognitively, and emotionally, changing from a child into an adult during adolescence. The body grows rapidly in size and so do the sexual and reproductive organs. At the same time, as adolescents develop more advanced patterns of reasoning and a stronger sense of self, they seek to forge their own identities, developing important attachments with people other than their parents. It is seen in Western societies that as the need to forge a new independence is critical (Baumeister & Tice, 1986; Twenge, 2006), this period can be stressful for many children. This is a phase involving new emotions, the need to develop new social relationships, and an increasing sense of responsibility and independence.

Adolescence is seen as a time of stress for many teenagers. For example, the majority of adolescents experiment with alcohol during their high school years. Many teenagers develop long-lasting drinking problems that adversely affect their personal and academic life.

11.3 ERIKSON'S VIEWS

Sigmund Freud's psycho-sexual theory and Erik Erikson's psycho-social theory are two important psycho-analytic theories on human development that could be used to explain the developmental effects. Erikson's theory followed Freud's and was based on many of Freud's ideas.

Hence, before studying Erikson's theory, we need to understand Freud's theory on different stages of development, which are briefly discussed as follows:

- **Stage 1 (The oral stage):** The focus of pleasure in the oral stage is mouth. The child's love object is his mother's breast which he sucks to satisfy his hunger. The child's development starts with the act of nursing by his mother.
- **Stage 2 (The anal stage):** It refers to the stages when the focus of pleasure shifts from mouth to the anus. The child takes interest in the activities pertaining to anus and pleasure is drawn from activities like urinating and defecating.
- **Stage 3 (Phallic stage):** This stage refers to around the age of three to six. The focus of pleasure shifts from anus to the sexual organs. Children masturbation is very common during this period. Another important development during this phase is of *Oedipus complex*. The male child desires his mother and wants to destroy his rival, the father, but perceives his father as a powerful rival and is afraid of being harmed by castrating him. This primitive fear of physical harm is called 'castration anxiety'. Gradually this conflict is resolved by repressing his desire for his mother and identifying with his father. The female child likes her father and hates her mother. This is called *Electra complex*.
- **Stage 4 (Latency stage):** During this stage, infantile sexuality becomes less important. The child engages himself in learning skills and in the development of values.
- **Stage 5 (Genital stage):** The focus of pleasure shifts to the member of the opposite sex.

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Erikson's Theory of Psycho-social Stages

Erikson has proposed another theory on the stages of child development. He stressed upon Epigenetic Principle, according to which the development of new properties which were not contained in the original situation develop as a result of environmental influences and the interaction between the former (original situation) and the latter (environmental factors). He divides stages of development into eight phases marked by specific developmental characteristics. The stages are mentioned in Table 11.2.

Table 11.2 Eight Phases of Development

S. No.	Stage	Psychosocial Crises
1	Birth to first year	Trust vs. mistrust
2	1 to 2 years	Autonomy vs. shame, doubt
3	3 to 5 years	Initiative vs. guilt
4	6 to 12 years	Industry vs. inferiority
5	Adolescence	Identity vs. Identity diffusion or Role confusion
6	Early adult	Intimacy vs. Isolation
7	Young and middle adult	Generativity vs. Stagnation
8	Later adult	Integrity vs. Despair

NOTES

A brief description of the psycho-social stages is given below:

- **Stage 1 (A sense of trust versus mistrust):** This stage ranges from birth to eighteen months of age. The first task of an infant is to develop the basic sense of trust in himself and in his environment. During this stage, the infant is completely dependent on others for the fulfilment of his basic needs. If his needs are not satisfied then he gradually loses his sense of faith in the world around him. The sense of faith is laid down during this period.
- **Stage 2 (A sense of autonomy versus a sense of shame):** This stage covers the period between eighteen months to three years. The child develops a sense of autonomy. He does not want help from others. He likes to do things in his own way. Parents can help their children in developing a healthy sense of autonomy through a balance of firmness and permissiveness. Parents should decide the limit of freedom for children keeping into consideration the conditions of the environment. Children who are not given legitimate freedom to explore their environment develop doubt about their abilities to perform a specific task and become self-conscious. Shame is the other part of this feeling. We know that there are children who are terribly self-conscious and fearful of their weaknesses being exposed.
- **Stage 3 (A sense of initiative versus a sense of guilt):** This stage starts from three years of age and continues up to six years. Children grow at a rapid rate in almost all dimensions such as social, physical, intellectual and emotional, etc. Social boundaries expand beyond the home environment. Children may express their autonomy in behaviour which is called initiative. They begin to develop a sense of right or wrong. If the feeling of guilt is overtaxed by moralistic parents and teachers, children may develop a feeling of negativity which may inhibit their urge to test themselves in an expanding social world.
- **Stage 4 (A sense of industry versus a sense of inferiority):** This stage starts from six years and continues up to twelve years of age. The child devotes his energies to self-improvement and to the conquest of people and things. According to Erikson, a child becomes ready to apply himself to given skills and tasks which go far beyond the mere playful expression of his organ modes on the pleasure in the function of his limbs. He develops industry, i.e., he adjusts himself to the inorganic laws of the tool world. The child wants to master whatever he does. He is full of energy and makes efforts to produce new things. On the other hand, the child realizes he has not grown up yet. This leads to inferiority complex.
- **Stage 5 (Identity versus role confusion):** This is the stage of adolescence. In the previous stages the child has continued to mature and assimilate the customs and values of his culture and in the process he has begun to formulate his identity. There is return of heterosexual

interests. Adolescents are concerned about their future roles and status. Clarity of future roles leads to the development of identity otherwise confusion persists and leads to frustration.

- **Stage 6 (Intimacy versus isolation):** This is the stage of early adulthood. Erikson considers social interaction as fundamental and unavoidable influence on personality development. Proper self-image is necessary and helps to develop intimate relationships. During this stage, the individual moves away from parental control into the ever-expanding variegated community. When identity is developed, one seeks someone to share. The success leads to development of intimacy whereas failure will develop isolation. The individual is ready to commit himself to affiliation or companionship.
- **Stage 7 (Generativity versus stagnation):** Generativity incorporates productivity and creativity. During middle adulthood the individual is concerned with his offspring and also with action. Regression from generativity often leads to pseudo-intimacy and to the impoverishment of relationships. It is the fear of stagnation that keeps the people productive. During this stage the person wants to have control over others and is ready to help the junior colleagues.
- **Stage 8 (Integrity versus despair):** This is old age. The person reflects upon the life lived and sometimes integrates even death into that pattern. Having successfully established identity and intimacy, the individual experiences a sense of fulfilment. If the person feels that he has successfully resolved the crisis, a sense of integrity will develop otherwise the person will develop a sense of despair.

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11.3.1 James Marcia's Views

The different categories of identity statuses as defined by Marcia are as follows: Identity diffused or identity confused. Individuals who had not yet experienced an identity crisis, nor made any commitment to a vocation or set of beliefs. Foreclosure: Individuals who have not experienced crisis, but has made commitments, however, these commitments are not the result of his own searching and exploring, but they are handed to him, ready-made, by others, frequently his parents. Moratorium: Individuals who are in an acute state of crisis. They are exploring and actively searching for alternatives, and struggling to find their identity; but have not yet made any commitment or have only developed very temporary kinds of commitment. Identity Achieved. An individual who have experienced crises but have resolved them on their own terms, and as a result of the resolution of the crisis had made a personal commitment to an occupation, a religious belief, a personal value system; and, has resolved their attitude toward sexuality. Most adolescents seem to progress toward a status of identity achieved. Identity achievement is rarest among early adolescents. It is more frequent among older high school students, college students and young adults.

NOTES

Margret Mead: Maintains that the major task facing adolescents today is the search for a meaningful identity. This task is immeasurably more difficult in a modern democratic society than in a primitive society. The behaviour and values of parents no longer constitute models, since they are outmoded as compared with the models provided by the mass media. Furthermore, the adolescent in the process of freeing the self from dependency on parents is not only unresponsive, but frequently antagonistic to their value system. Since the adolescent has been taught to evaluate his behaviour against that of his age-mates, he now discards his parents' value system and exchanges it for the standard of his peers. Rapidity of social change, exposure to various secular and religious value system, and modern technology make the world appear to be adolescent too complex, too relativistic, too unpredictable, and too ambiguous to provide him with a stable frame of reference (Muuss, 1975).

11.4 ADOLESCENTS RELATIONSHIP WITH FAMILY, PEERS AND ADULT SOCIETY

Adolescence can be a difficult time as a child is going through rapid physical changes as well as emotional ups and downs. Youngsters are not always sure where they fit, and they somehow try to work it out. Adolescence can also be a time when peer influences and relationships can cause a child some stress. The best way to overcome these challenges is to support each other as it is a time of emotional turmoil, conflict within the family, alienation from adult society, reckless behaviour and rejection of adult values.

During this time it is important for a family to provide a secure emotional base to the child. The child should feel loved and accepted, no matter what's going on in the rest of his life. A family can build and support a child's confidence, self-belief, optimism and identity. On the other hand when a family sets rules, boundaries and standards of behaviour, a child is given a sense of consistency and predictability.

It has been observed that supportive and close family relationships protect a child from risky behaviour like alcohol and other drug use. It can also avoid problems like depression and insomnia. Support and interest in what a child is doing at school can boost his desire to do well academically too. Strong family relationships can go a long way towards helping your child grow into a well-adjusted, considerate and caring adult.

Check Your Progress

1. What is physiological growth?
2. What triggers the changes that occur during adolescence?
3. Name the two important psycho-analytic theories on human development.

11.5 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. Physiological growth refers to the growth and development of physical as well as mental features. Development of the cognitive, emotional, intellectual and social skills is as important as the development of different body parts. The simultaneous growths of physical attributes along with mental abilities are both signifiers of physiological development.
2. The changes that occur during adolescence are initiated and triggered by hormones.
3. Sigmund Freud's psycho-sexual theory and Erik Erikson's psycho-social theory are two important psycho-analytic theories on human development that could be used to explain the developmental effects.

NOTES

11.6 SUMMARY

- Physiological growth refers to the growth and development of physical as well as mental features. Development of the cognitive, emotional, intellectual and social skills is as important as the development of different body parts.
- The changes at puberty can be studied under three headings: (1) development of secondary sexual characteristics, (2) development of sex organs, and (3) intellectual, emotional and psychological development.
- The changes that occur during adolescence are initiated by hormones. You have read about the two hormones—estrogen, produced by the ovaries and testosterone, produced by the testes. At the onset of puberty, these hormones stimulate the growth and function of various organs like the bones, muscles, skin, breasts, brain and the reproductive organs and cause physiological changes.
- Adolescence is seen as a time of stress for many teenagers. For example, the majority of adolescents experiment with alcohol during their high school years. Many teenagers develop long-lasting drinking problems that adversely affect their personal and academic life.
- Sigmund Freud's psycho-sexual theory and Erik Erikson's psycho-social theory are two important psycho-analytic theories on human development that could be used to explain the developmental effects.
- Adolescence can be a difficult time as a child is going through rapid physical changes as well as emotional ups and downs. Youngsters are not always sure where they fit, and they somehow try to work it out. Adolescence can also be a time when peer influences and relationships can cause a child some stress.

NOTES

- During this time it is important for a family to provide a secure emotional base to the child. The child should feel loved and accepted, no matter what's going on in the rest of his life.
- A family can build and support a child's confidence, self-belief, optimism and identity. On the other hand when a family sets rules, boundaries and standards of behaviour, a child is given a sense of consistency and predictability.

11.7 KEY WORDS

- **Estrogen:** It is the primary female sex hormone. It is responsible for the development and regulation of the female reproductive system and secondary sex characteristics.
- **Generativity:** A concern for people besides self and family that usually develops during middle age especially: a need to nurture and guide younger people and contribute to the next generation.

11.8 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short-Answer Questions

1. Write a short note on sexual maturation and growth spurt.
2. State some of the changes that occur in boys and girls during puberty.
3. List some of the glands of the endocrine system and state the functions.

Long-Answer Questions

1. Analyse the different changes experienced at puberty.
2. 'Sigmund Freud's psycho-sexual theory and Erik Erikson's psycho-social theory are two important psycho-analytic theories on human development.' Discuss.
3. Analyse the different stages of development according to Erikson.

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BLOCK - IV
STAGES OF ADULTHOOD

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UNIT 12 EARLY ADULTHOOD

Structure

- 12.0 Introduction
 - 12.1 Objectives
 - 12.2 Early Adulthood: An Overview
 - 12.2.1 Foundation of Intimate Relationship and Sexuality
 - 12.3 Marriage and Marital Adjustment
 - 12.3.1
 - 12.4 Answers to Check Your Progress Questions
 - 12.5 Summary
 - 12.6 Key Words
 - 12.7 Self Assessment Questions and Exercises
 - 12.8 Further Readings
-

12.0 INTRODUCTION

The life stage called early adulthood defines individuals between the ages of 20 and 35, who are typically vibrant, active and healthy, and are focused on friendships, romance, child bearing and careers.

In *early adulthood*, our physical abilities are at their peak, including muscle strength, reaction time, sensory abilities, and cardiac functioning.

12.1 OBJECTIVES

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

- Describe the different development phases of early adulthood
 - Discuss the vocational adjustment that is seen in early adulthood
 - Explain the foundation of intimate relationship and sexuality
 - Analyse the circumstances of marital adjustment and the conditions influencing it
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12.2 EARLY ADULTHOOD: AN OVERVIEW

Adulthood can be roughly divided into three broad phases: early (from approximately 18 to 40 years of age), middle (41–65), and late (over 66). There are substantial differences within each phase, but this can be considered a basic

framework for studying the longest period of human development – adulthood. By the time an individual reaches early adulthood, he has already spent quite some time developing. He has learnt to walk, talk, set up home and has been physically and mentally transformed / grown from an infant to a parent himself.

Physical Development

For most people, early adulthood marks the period of peak physical capacity. By the late teens, the body grows to its full height, and physical strength also increases into the late 20s and early 30s. A person becomes more agile and his movements are well coordinated. His sensory capacities such as vision and hearing, are also well developed and at their best performance. But change is imminent, even in these basic capacities. The perception of high-pitched tones does fall by the late 20s. Manual dexterity begins to lessen in the mid-30s. Generally, early adulthood makes people feel robust and energetic, exceptions being situations where deadlines are being chased or exams are being appeared for. The flip side is that this age group sees people using damaging substances, such as alcohol and tobacco, legally. They may even have illegal access to stimulants or narcotics. Young adults also have increasing responsibility for organizing their own eating habits and exercise regimes. Not surprisingly, the health status and prospects of young adults are determined by their own behavioural choices.

Cognitive development

By the end of adolescence, most people are capable of the levels of reasoning that we would expect for normal functioning in adult society. Although there are wide individual differences in attainment, most young adults are able to deal with cognitive tasks in a more abstract way than before, and to attain solutions to problems by comparing possible explanations. Does this mean that cognitive development has reached a plateau? Many investigators of adult cognition think not.

Riegel's theory of post formal thought

According to Riegel (1975) adult experiences lead to exposure to new levels of cognitive challenge. Many aspects of our environment can manifest contradictory features. This is especially so in the human environment. For example, a person we love can be warm and generous often, but there will be times when he or she may become selfish and indifferent. How would we label them then? Generous or selfish?

In various other situations, people may exhibit contradictory behaviour. Even groups or organizations may present strongly differing points of view on the same issue. There may be no absolute resolution of the conflicts. We simply have to integrate our understanding into a more complex picture.

Life can be far from simple and at times really ambiguous. Riegel argued that achieving the intellectual ability to deal with the contradictions that confront us in our everyday life requires progress to a stage of reasoning – the stage of dialectical operations, now more commonly called postformal thought.

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Research into postformal reasoning indicates that development continues well into adulthood (Sinnott, 1998). Research participants are often presented with problems relating to complex topics (e.g. in science, education, religion, politics or personal relationships) and encouraged to provide and justify decisions. Their reasoning is coded and categorized into stages.

Kramer's three stages

Kramer (1983, 1989) proposed that people progress through three broad stages:

- (i) absolutist
- (ii) relativist
- (iii) dialectical.

Early adulthood sees several people in the absolutist phase that is, being capable of solving problems, inclined to believe that all problems have a solution. For example, a student may begin university education on the belief that it will be a matter of learning facts and procedures, that the lecturers know everything and will tell you what is right and wrong.

People in the relativist stage are aware of different perspectives on certain issues, and the dependence of 'correct' answers on the context. Students welcome different theories and conflicting evidence – but this diversity of perspectives leads them to assume that hardly anything can be depending on. So, for example, it is possible for a lecturer to come up with a new theory, which may be altogether wrong.

There is proof that the undergraduate experience marked by diverse ideas and conflicting viewpoints and theories can facilitate the development of relativist thinking (Benack & Basseches, 1989).

In the dialectical phase, people are eventually capable of integrating competing positions and reach a level of synthesis. They come to accept and comprehend the existence of diverse views, and appreciate that the overall progress and contributions of their chosen discipline derives from efforts to resolve its internal contradictions. Basseches (1984) found that this type of reasoning is more characteristic of people studying at higher degree level or of university staff. Although aspects of dialectical reasoning can be found in adults in their 20s and 30s, Kramer's (1989) research led her to the conclusion that this stage is only fully realized in late adulthood.

Measurement of intelligence

Other ways of investigating the intellectual development in adulthood are based on the psychometric tradition. Using standardized IQ tests, researchers have tried to find out whether there are age-related differences in intelligence during adulthood. There are many different ways to measure intelligence. K. Warner Schaie and his colleagues have conducted studies of the evolution of primary mental abilities among

several thousand adult Americans (Schaie, 1996, 2000). They focussed on five key skills:

1. Ability to calculate (numeric skills)
2. Ability to recall (verbally)
3. Ability to speak or write
4. Ability to reason inductively
5. Spatial orientation

Developing socio-emotionally

The youth have challenges in the form of formidable developmental tasks. At the beginning of youth, they are concerned with launching a career. They may be studying to gain the required qualifications, or training at the entry level of an organization. Some may not be as lucky. Unemployment may be high in many countries. Not just studies, but employment as well as unemployment may result in stress. At the same time, young adults tend to get romantic and enter into relationships that may cause stress and anguish. All this happens alongside changes in relationships with parents, and the increasing expectation that the young person will take responsibility for her own life – including, perhaps, a shift to a new home.

It would be an unusual person indeed who proceeded through these developmental tasks without at least occasionally wondering who she is, or who she is becoming, and how she is faring compared to her peers. For most people, facing these issues brings a range of emotional reactions.

Levinson's stage model of personal development

Several different theories have been put forward to account for personal development during early adulthood. From a psychoanalytic perspective, Erikson and Erikson (1997) see the dominant focus of this stage as the development of intimacy – the ability to love and trust another person.

Levinson (1978) extended some of Erikson's ideas, but drew also on social psychological theory to explain the relationship between the developing individual and the demands of society. He emphasized the social role requirements at different life stages, and the interaction between personal growth and relationships. He maintained that all normally developing adults progress through the same stages in the same sequence, and at roughly the same pace.

Early adulthood begins with the sub-stage of early adult transition (approximately 17–22 years), in which young people are working towards autonomy from their parents and formulating a 'Dream' of what they hope to become in life. The Dream is important because it guides their efforts and choices in both the occupational and personal spheres. Do you have your own Dream, or did you have one during this phase of life, and how does/did it relate to your current occupation and plans?

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The next sub-stage is the period of entering the adult world (22–28), and is organized around forging a pathway at work and attaining a special personal relationship. This is followed by the ‘age 30’ transition (28–33), in which people undergo a moderate degree of self-questioning – reviewing their Dream, the choices they have made and the problems in their lives.

The rest of this decade (33–40) is the ‘settling down’ period, when people have usually found their niche in life and are striving to consolidate their professional and domestic roles – they are basically getting their lives in order.

Levinson arrived at his account on the basis of a series of intense individual interviews with a group of American men in mid-life. Although they came from a variety of backgrounds and had a range of careers and family histories, similar patterns appeared to emerge. Although Levinson’s original sample was relatively limited, subsequent work has shown that the model fits many American women reasonably well, too (Levinson, 1996; Roberts & Newton, 1987).

Theories of Attachment

As per developmental models such as Erikson’s and Levinson’s, the youth are developing a sense of personal identity along with an urge or need for proximity to others. They have experienced the biological developments of adolescence, and are fully mature sexual beings. Discovery and development of relationships with an intimate companion, or several companions or partners, becomes a priority for many youth. It is interesting to note that there are several similarities in the manner in which people develop early relationships with caregivers during infancy and intimate adult relationships later on. John Bowlby (1988), considered the initial attachment relationship as the crucial foundation of development later in life.

12.2.1 Foundation of Intimate Relationship and Sexuality

Adults form attachments to other people and, and just as when they were infants, their relationships in adulthood are intensely emotional. Just as in infancy, our adult attachments encourage us to get close to the person we feel we need, to engage in extensive eye contact, to hold – and, just as in infancy, we tend to become distressed at separation. Some social psychologists, such as Mickelson, Kessler & Shaver argue that the types of attachments formed during adulthood can be categorized using the framework to factor in infant attachments:

- (i) Secure
- (ii) Anxious
- (iii) Avoidant

‘Securely’ attached lovers enjoy the comfort and rewards of intimate relationships. They have trust and confidence in their partners and in their commitment. ‘Anxious/ambivalent’ lovers are not sure or certain about their relationships. Sometimes, they fear that their partner does not love them enough and may leave, and they may respond to this anxiety by pressurizing the partner,

running the risk of causing the very outcome they fear. 'Avoidant' lovers find getting close to others uncomfortable, find it difficult to trust others, and are reluctant to commit themselves fully to a relationship.

It was discovered through research that the proportions of adults who fell into these classes were similar to those of infant attachments, with (approximately) 59 per cent secure, 11 per cent anxious/ambivalent and 25 per cent avoidant (Mickelson et al., 1997). Other research indicates that adults who fall into these different categories recall their childhood relationships with their parents in ways that are consistent with these patterns. So, 'secure' individuals report relaxed and loving parents, anxious/ambivalent' people feel their parents were over-controlling, and the 'avoidant' adults reported lower levels of communication and emotional support from their parents (Rothbard & Shaver, 1994).

Students make for interesting participants in attachment research, because many are dealing with the issues of ending and maintaining relationships at the time the study takes place. In an Australian study, Feeney, Noller and Patty (1993) investigated the romantic relationships of heterosexual students of different attachment types. They found that the relationships of 'secure' individuals tended to be more stable and loving, while those of 'anxious/ambivalent' people were less enduring and more numerous. 'Avoidant' individuals tended to be more accepting of casual sex, presumably because they are less interested in maintaining commitments to others.

12.3 MARRIAGE AND MARITAL ADJUSTMENT

Marriage is a long term relationship which is most preferred by people. Marriage can turn advantageous as married people develop healthier and happier lives than their single, divorced, and widowed counterparts. On an average, married males live longer than single males. Marriages during the early years seem happiest, although marital satisfaction increases again in the later years after parental responsibilities end and finances stabilize.

Marriage can also turn disadvantageous at times. Unrealistic expectations about marriage, as well as differences over sex, finances, household responsibilities, and parenting, create only a few of the potential problem areas. Numerous problems and conflicts arise in long term relationships.

During the present scenario, both the partners are working. This is also one of the reasons of conflicts and bickering at home. If one spouse refuses to assist, the other spouse may become stressed over managing a career, taking care of household chores, and raising the children. This is why it is seen that married women with children ultimately resign from their jobs and take up the home front in contrast to single working women.

The topic of marital adjustment is of extreme importance and has long been a popular topic in studies of the family. This is so because the concept is believed

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to be closely related to the stability of a given marriage. The marriages that are well-adjusted are expected to last for a long time, while poorly adjusted ones end in divorce. Empirical research cannot alone measure the notion of marital adjustment.

In a well-adjusted marriage, both spouses try to make sure that their marriage will be successful. They also share common interests and joint activities. Agreement between spouses on important matters is critical to any well-adjusted marriage. Though minor differences may broaden their perspectives, major differences between the spouses in matters such as, political orientations, philosophy of life and attitudes toward gender roles are unfavourable to marital adjustment. Agreement on specific decisions about family matters must also be reached in good accord. Marital unity refers to the commitment on both sides to the marriage and the companionship experienced in it. In a well-adjusted marriage, both spouses must be satisfied and happy with the marriage. Unhappy but long-lasting marriages cannot be called successful. Spouses in well-adjusted marriages share affection, and it is demonstrated as affectionate behaviour. Finally, the degree of tension in a well-adjusted marriage is minimal, and when tension arises it is resolved amicably, probably in discussion, and the level of tension and anxiety is usually low.

12.3.1 Parenthood and Parental Adjustment

According to Cowan & Cowan (2000), ‘The transition to parenthood brings about major changes in men and women’s roles, responsibilities, and identities. Parents’ well-being is fragile during this transition period, as many mothers and fathers, even those considered to be “low risk,” experience it as a stressful time’. There are three key domains of influence on parenting:

- Child characteristics
- Parent characteristics
- Contextual factors.

Research in the present field also suggests that one factor influencing parent adjustment is infant temperament.

The adjustment of the new parents to parenthood is also complicated and includes both general well-being and more specific dimensions related to their new roles as parents. Mothers are at elevated risk for depression during early parenthood and a growing body of research work suggests that some fathers also suffer from postnatal depression. During early parenthood, parenting stress may arise as a result of mothers and fathers juggling their new responsibilities, feeling trapped by their parenting role. Elemental level of stress is quite common during this period but elevated stress levels can be termed as ‘negative parenting practices’. It is important to understand another parenting term here, known as parenting efficacy. It refers to parents’ confidence in their ability to respond to their child’s needs competently and effectively. Parent experiencing anxiety or helplessness in

the face of difficult or ambiguous infant signals suffers low efficacy. High levels of parenting stress and depressive symptoms and low efficacy may interfere with parents' engaged, sensitive parenting. In a nutshell it can be said that becoming parents creates many new challenges that might disturb the psychology of the new parents. How they adjust to their role as parents has implications for both their personal well-being, parenting, and their child's development.

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Check Your Progress

1. What are the three broad stages of development proposed by Kramer?
2. How does early adulthood mark itself?
3. State the three broad stages of adulthood.

12.4 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. Kramer (1983, 1989) proposed that people progress through three broad stages:
 - absolutist
 - relativist
 - dialectical.
2. Early adulthood begins with the sub-stage of early adult transition (approximately 17–22 years), in which young people are working towards autonomy from their parents and formulating a 'Dream' of what they hope to become in life.
3. Adulthood can be roughly divided into three broad phases: early (from approximately 18 to 40 years of age), middle (41–65), and late (over 66).

12.5 SUMMARY

- Adulthood can be roughly divided into three broad phases: early (from approximately 18 to 40 years of age), middle (41–65), and late (over 66).
- For most people, early adulthood marks the period of peak physical capacity. By the late teens, the body grows to its full height, and physical strength also increases into the late 20s and early 30s. A person becomes more agile and his movements are well coordinated.
- According to Riegel (1975) adult experiences lead to exposure to new levels of cognitive challenge. Many aspects of our environment can manifest contradictory features. This is especially so in the human environment.

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- Early adulthood sees several people in the absolutist phase that is, being capable of solving problems, inclined to believe that all problems have a solution. For example, a student may begin university education on the belief that it will be a matter of learning facts and procedures, that the lecturers know everything and will tell you what is right and wrong.
- The youth have challenges in the form of formidable developmental tasks. At the beginning of youth, they are concerned with launching a career. They may be studying to gain the required qualifications, or training at the entry level of an organization. Some may not be as lucky. Unemployment may be high in many countries. Not just studies, but employment as well as unemployment may result in stress.
- Just as in infancy, our adult attachments encourage us to get close to the person we feel we need, to engage in extensive eye contact, to hold – and, just as in infancy, we tend to become distressed at separation.
- Marriage is a long term relationship which is most preferred by people. Marriage can turn advantageous as married people develop healthier and happier lives than their single, divorced, and widowed counterparts.
- In a well-adjusted marriage, both spouses try to make sure that their marriage will be successful. They also share common interests and joint activities. Agreement between spouses on important matters is critical to any well-adjusted marriage.
- Elemental level of stress is quite common during this period but elevated stress levels can be termed as ‘negative parenting practices’. It is important to understand another parenting term here, known as parenting efficacy. It refers to parents’ confidence in their ability to respond to their child’s needs competently and effectively. Parent experiencing anxiety or helplessness in the face of difficult or ambiguous infant signals suffers low efficacy.

12.6 KEY WORDS

- **Cognitive development:** It is the construction of thought processes, including remembering, problem solving, and decision-making, from childhood through adolescence to adulthood.
- **Postformal thought:** It is often described as more flexible, logical, willing to accept moral and intellectual complexities, and dialectical than previous stages in development.

12.7 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short-Answer Questions

1. Differentiate between cognitive and physical development.
2. What are the measures of intelligence?
3. State the importance of marital adjustment.

Long-Answer Questions

1. Analyse the different stages of early adulthood.
2. Discuss the foundation of intimate relationship and sexuality.
3. Analyse the different adjustments that take place after marriage.
4. 'The transition to parenthood brings about major changes in men and women's roles, responsibilities, and identities.' Discuss.

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Websites

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UNIT 13 MIDDLE ADULTHOOD

NOTES

Structure

- 13.0 Introduction
- 13.1 Objectives
- 13.2 Overview of Middle Adulthood
- 13.3 Relationship with Maturing Children and Ageing Parents
- 13.4 Answers to Check Your Progress Questions
- 13.5 Summary
- 13.6 Key Words
- 13.7 Self Assessment Questions and Exercises
- 13.8 Further Readings

13.0 INTRODUCTION

According to the Oxford English Dictionary, middle age is between 45 and 65. “The period between early adulthood and old age, usually considered as the years from about 45 to 65.” The US Census lists the category middle age from 45 to 65. Webster lists middle age from 45 to 64, while prominent psychologist Erik Erikson saw it starting a little earlier and defines middle adulthood as between 40 and 65. The Collins English Dictionary lists it between the ages of 40 and 60, and the Diagnostic and Statistical Manual of Mental Disorders – the standard diagnostic manual of the American Psychiatric Association – used to define middle age as 40 to 60, but as of DSM-IV (1994) revised the definition upwards to 45 to 65.

13.1 OBJECTIVES

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

- Describe the physical development during middle adulthood
- Discuss the occupational adjustment and the stable and unstable patterns of growth
- Explain midlife crisis and discuss ways to cope with it
- Discuss the changes in relationships with maturing children and ageing parents

13.2 OVERVIEW OF MIDDLE ADULTHOOD

Once again, it is difficult to define this phase of life precisely. The variety of human life courses means that individuals can be in very different stages of their personal development at the age point (i.e. turning 40) that we have taken as a rough measure of entry to middle age.

Physical Development

During midlife, people experience a range of external and internal physical changes. External changes include the appearance of grey hair and hair thinning, increase in facial wrinkles, and a tendency to put on weight around the waist or lower body. Internal changes include reductions in the efficiency of the cardiovascular, respiratory and nervous systems.

There are changes to the sensory capacities, too. One of the most noticeable for most middle-aged people is the onset of presbyopia – a condition of farsightedness due to progressive changes in the shape of the lens of the eye. This leads to difficulty in reading small print – you may notice people of this age holding printed matter further away than a younger reader does. Hearing, particularly sensitivity to higher frequency sounds, is also prone to weaken during middle age.

This is the time when women experience the menopause – the cessation of menstruation. Many women suffer some level of physical and psychological discomfort as a result, such as hot flushes, mood changes, loss of libido and insomnia. But the intensity of these symptoms varies considerably among individuals. There is some evidence that the physical symptoms associated with menopause vary across some cultures. This may reflect variations in diet and/or social expectations about the nature of the menopause. As at other stages of the lifespan, physical changes are closely interwoven with psychological changes. Signs of aging prompt many people to review their lives (see below) and some begin to feel dissatisfied with their bodies. In a large sample of middle-aged and older Swiss women, for example, Allaz, Bernstein, Rouget et al. (1998) found that a majority expressed dissatisfaction about their weight and many had dieted to control it, even though their weight fell within the normal range. Individuals' own behavioural choices can moderate the effects of biological changes. For example, menopausal women who take regular aerobic exercise report more positive moods and less somatic discomfort than non-exercising peers. The reactions and support of partners can also influence women's experience of menopause.

Cognitive Development: Stable and Unstable Patterns

In terms of primary mental abilities, Schaie's (1996) data depict midlife as a relatively stable period. In fact, on most measures, middle-aged adults perform as well as or slightly better than younger adults. Schaie did find a decline in numeric skill, and other researchers have obtained evidence of a modest decrease in reaction time and a reduction in conscious processing efficiency during this period. However, in terms of psychometric measures of intellectual functioning, middle-aged people perform well overall.

Life Skills

There are some tasks on which middle-aged adults tend to fare worse than young adults. For example, Denney and Palmer (1981) gave people between the ages of 20 and 80 a traditional problem-solving test – a game of 'Twenty Questions'. (The goal is to identify an object known to the tester by asking a series of indirect

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questions about it: ‘Is it a plant?’ ‘Can you eat it?’ etc.) The older people got, the worse they did.

But this could well be because this type of test was more familiar to the younger participants, who were therefore likely to do better. This interpretation of the findings is perhaps borne out by another series of tests administered by Denney and Palmer. These ‘real world’ tests related to practical applications of reasoning, such as how to deal with faulty purchases, brooding in the basement, or a child returning late from school. On these practical tests, middle-aged people scored significantly higher than young adults. In other research, Denney and Pearce (1989) found that the number of solutions people generate in response to everyday practical problems peaks in middle age.

Occupational Adjustment

Many adults find meaning in and define themselves by what they do—their careers. Earnings peak for many during adulthood, yet research has found that job satisfaction is more closely tied to work that involves contact with other people, is interesting, provides opportunities for advancement, and allows some independence (Mohr & Zoghi, 2006) than it is to salary (Iyengar, Wells, & Schwartz, 2006).

Emotions and clear thinking

Researchers who focus on qualitative developments in adult reasoning have found evidence of continuing development through the lifespan. The progression through absolutist, relativist and dialectical reasoning may continue for decades. Some researchers argue that there is an important reorganization of thinking in middle adulthood, as people achieve an integration of information-processing and emotional self-regulation.

A good illustration is provided by Blanchard-Fields (1986). She tested adolescents, young adults and middle-aged adults on three hypothetical problems, each involving a conflict of perspectives. One problem concerned competing historical accounts of a civil war, with different historians taking different sides. Another problem concerned a dispute over a proposed visit to grandparents, with parents in favour of the visit and their adolescent children against. The third problem concerned a pregnancy dilemma, with the female and male taking different views over whether to terminate. The participants’ task was to explain the conflict in each case. Blanchard-Fields analysed the quality of the participants’ reasoning. She found that the middle-aged adults performed at a higher level than each of the younger groups. The younger participants tended to take sides, especially in the emotionally engaging ‘visit’ and ‘pregnancy’ problems, leading to distorted, one-sided accounts. The middle-aged participants were more likely to try to understand why each party felt the way they did, and to provide more balanced descriptions, taking all perspectives into account. In other words, it seemed that the younger participants tended to be swayed by their own emotions about the conflicts, while the middle-aged participants appeared to integrate emotional understanding with other problem-solving skills.

Social and emotional development

Each phase of life brings new challenges, and for many people midlife brings a multiplicity of them – from all quarters. By this time, people’s histories are very varied. In their personal and occupational lives, many different options may have been chosen and many different events and circumstances will have affected their progress. So can we pin down any particular patterns of social and emotional development associated with middle age? Despite this variety in individuals’ personal background, some lifespan developmentalists maintain that we can.

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Psychological Changes

According to Erikson (1980) middle age was a period when adults faced conflict between generativity and stagnation. Generativity – the process of making a contribution to the next generation – can be realized in a variety of ways through personal (family) or career attainments that provide a basis for others to progress. For example, a businessperson in midlife might find satisfaction in her professional achievements to date and in the scope now to pass on skills to younger colleagues. Another person might find a sense of generativity through having reared children that she is proud of and who are now entering the adult world well equipped to meet challenges. A ‘link between the generations’, maintained Erikson, is ‘as indispensable for the renewal of the adult generation’s own life as it is for the next generation’.

Stagnation is the opposing feeling of having achieved relatively little and of having little to offer to the next generation. Some people in midlife, for example, conclude that they have not met the family or occupational goals that once motivated them. Some respond to this sense of ‘standing still’ with a period of self-absorption, and an acute awareness that time is limited.

Individuals are likely to experience both types of feeling – generativity and stagnation – and the core developmental process of midlife, according to Erikson, is the resolution of this conflict. Those who resolve it successfully attain a sense of care (about both the present and the future), and those who fail to do so develop a sense of reactivity (i.e. they turn away from society and have little interest in contributing to it).

Recent research has supported Erikson’s claims that generativity is positively associated with subjective well-being in middle-aged people, while a preoccupation with aging (‘time running out’) is negatively associated with well-being.

Midlife Crisis and Changes in Relationship

Levinson (1978) also depicts midlife as a period of inner conflict. Recall that Levinson saw the period from approximately 33 to 40 as the ‘settling down’ period. But settling down is not the end of the story. Levinson found that most of his interviewees next underwent a major new phase, during a period of midlife transition. Many of the men he interviewed reported that this was a time of personal crisis. They began to review their lives, asking themselves what they had achieved

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and where they were heading. Many wondered whether their personal and career struggles had been worthwhile, and some contemplated or underwent radical changes in direction (changing career paths, divorcing). Although Levinson's sample was all male, other research indicates that many women report similar periods of reassessment during middle age.

These kinds of reassessment are popularly associated with the notion of the 'midlife crisis'. The visible signs of aging, changes in the family structure as children become adolescents or young adults, and frustrations in the workplace may all serve to remind the middle-aged person that life is passing by – and this might precipitate a personal 'crisis'. Levinson argued that this is a normative process, and that successful adult development beyond midlife requires facing up to and resolving the crisis.

Appealing as the idea may seem (and much as newspaper writers and TV dramatists relish it), subsequent research shows that it is an over simplification to assume that everybody undergoes a midlife crisis. For example:

- Periods of turbulence and self-doubt can be experienced by adults of most ages, and some individuals – especially those who score highly on measures of neuroticism – may be prone to develop crises at any age.
- In larger samples than Levinson's (1978), only a minority of middle-aged people feel they have experienced a crisis.
- Substantial proportions of middle-aged people report better mental health and self-esteem during this phase of life than ever before.

The midlife crisis therefore does not appear to be as widespread as once thought, and there is no guarantee that you will have any more (or less) crises during your middle years than in other phases of your life. But there is no doubt that there are many pressures on middle-aged people. Some of these pressures relate to domestic and family life, and others to the world of work. For many middle-aged people, there are new parenting challenges as their children reach adolescence or early adulthood. At a time when adults are becoming aware of their own physical decline, their children may be gaining the attractions of youth.

Often, these demands coincide with increasing anxieties about and responsibilities towards the older generation. For some middle-aged people, usually women, looking after both their own children and their aging parents can cause 'caregiving pile-up' – an experience of overload due to too many competing demands.

As in earlier phases of life, the quality of a person's attachment to his or her partner has important implications for adjustment, personal satisfaction and dealing with life stresses. For example, in a longitudinal study of middle-aged people, Kirkpatrick and Hazan found that those with secure relationship attachment styles were less likely to experience a break-up of their partnership.

13.3 RELATIONSHIP WITH MATURING CHILDREN AND AGEING PARENTS

According to Ryff & Singer, 2009, ‘Positive relationships with significant others in our adult years have been found to contribute to a state of well-being’. Most adults in the United States identify themselves through their relationships with family—particularly with spouses, children, and parents. Umberson, Pudrovska, & Reczek in 2010 observed, ‘While raising children can be stressful, especially when they are young, research suggests that parents reap the rewards down the road, as adult children tend to have a positive effect on parental well-being.’ Having stable intimate relationships has also been found to contribute to well-being throughout adulthood.

In young adulthood, particularly in the twenties and thirties, people tend to be concerned with forming meaningful ties; if the young and middle-aged adults are unable to form meaningful relationships with family, friends, or community, they feel miserable and abandoned.

Most of the young adults find themselves raising small children. This is not the typical pattern, however. By the time most parents reach middle age, their children are at least of adolescent age.

It has been observed that both middle adults and their children experience emotional crises. As adolescents search for their own identities, middle adults are in the search of what it is called as ‘generativity’, the need to counsel and raise children. These two crises are not always compatible, as parents try to deal with their own issues as well as those of their adolescents (for example, discovering identity).

Some middle adults also form the habit to “live out” their own youthful fantasies through their children. They try to make their teenage children the improved versions of themselves. Witnessing their children on the verge of becoming adults can trigger a midlife crisis. The adolescent journey into young adulthood reminds middle age parents of their own aging processes and the inescapable settling into middle and later adulthood. Due to this, parents may experience depression or seek to recapture their youth. This may take shape through age inappropriate behaviour and sexual adventures.

It may so happen that some teenagers ignite much tension at home that their departure to college or into a career course acts as a relief to parents. Other parents experience the empty nest syndrome after all of their children leave home. They have trouble reconnecting to each other and rediscovering their own individuality separate from parenthood without the children as a focal point for their lives.

Parents

Most middle adults define the relationship with their parents as affectionate. A strong bond often exists between related middle and older adults. Although, it has

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been observed that the majority of middle adults do not live with their parents, and instead maintain frequent and positive contact.

In some cases, adults, who expected to spend their middle age years travelling and enjoying their own children and grandchildren, instead find themselves taking care of their ailing parents. This is the major issue facing middle adults – caring for their aging parents. Relationships with older adult parents vary a great deal. Some parents remain completely independent of their adult children’s support while others partially depend upon their children. There are still others who completely depend upon them. Daughters and daughters in law most commonly take care of aging parents and in laws.

For adults caring for their older parents, there are support groups and counselling sessions available. These typically provide information, teach caregiver skills, and offer emotional support. Other programs, such as Social Security and Medicare, ease the financial burdens of older adults and their caregivers.

Middle adults have been seen to react with intensity and pain to the death of one or both parents. The death of one’s parents offers a ‘wake up call’ to live life to its fullest and mend broken relationships while the people involved still live. Finally, the death serves as a reminder of one’s own mortality.

Friendship

Friends provide a healthy alternative to family and acquaintances in all age groups. They are the system of support, direction, guidance, and provide a change of pace from usual routines. Although many young adults manage to maintain their friendships but for middle adults family, school, and work can become greater concerns. Life responsibilities reach an all time high at this stage so there is less time for socializing. For this reason, middle adults generally maintain fewer close friendships than their newlywed and retired counterparts, although this is not always the case.

Grandparenthood

For most people, becoming a grandparent is a positive experience; but there is a clause attached to it – it largely depends on the age at which it happens. According to Szinovacz, 1998, ‘Nearly one third of grandparents enter grandparenthood ‘off-time’: either before 40 or after 60’. The influences by grandparents can be direct, resulting from contact and face-to-face interaction, and indirect, mediated by other means such as parental behaviour. One source of indirect influence of grandparents is via financial support. Also, by acting as parents themselves, grandparents influence how their children act as parents. According to Benoit and Parker (1994) ‘65 per cent concordance in attachment security across three generations: maternal grandmothers’ and mothers’ adult attachment interview (AAI) status and infants’ strange situation classification at 12 months. Attachment theory emphasises consistency over generations, but it also predicts that adults can work through or resolve unsatisfactory relations with their parents and modify their internal

working models, either through self-reflection or with the aid of therapy or counselling.’

Middle Adulthood

According to Farrington, 1993; Murphy-Cowan & Stringer, 1999, ‘Research on children’s antisocial behaviour also points to intergenerational influences. The use of physically aggressive and punitive techniques in the grandparent/parent generation predicts similar behaviour in the parent/grandchild generation, and also antisocial behaviour in the grandchildren.’ Caspi and Elder in 1988 also found a reinforcing dynamic between problem behaviour and unstable ties in the family across four generations of women in their Berkeley Guidance Study. Examples of direct influence are giving gifts, being a companion and confidant, acting as an emotional support or ‘buffer’ at times of family stress, passing on family history or national traditions, and acting as a role model for ageing.

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Check Your Progress

1. How can generativity be realised?
2. What is stagnation?
3. State briefly the relationship of middle adults with parents and vice versa.

13.4 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. Generativity – the process of making a contribution to the next generation – can be realized in a variety of ways through personal (family) or career attainments that provide a basis for others to progress.
2. Stagnation is the opposing feeling of having achieved relatively little and of having little to offer to the next generation. Some people in midlife, for example, conclude that they have not met the family or occupational goals that once motivated them.
3. Most middle adults define the relationship with their parents as affectionate. A strong bond often exists between related middle and older adults. Although, it has been observed that the majority of middle adults do not live with their parents, and instead maintain frequent and positive contact.

13.5 SUMMARY

- During midlife, people experience a range of external and internal physical changes. External changes include the appearance of grey hair and hair thinning, increase in facial wrinkles, and a tendency to put on weight around the waist or lower body.

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- There are changes to the sensory capacities, too. One of the most noticeable for most middle-aged people is the onset of presbyopia – a condition of farsightedness due to progressive changes in the shape of the lens of the eye.
- Researchers who focus on qualitative developments in adult reasoning have found evidence of continuing development through the lifespan. The progression through absolutist, relativist and dialectical reasoning may continue for decades. Some researchers argue that there is an important reorganization of thinking in middle adulthood, as people achieve an integration of information-processing and emotional self-regulation.
- According to Erikson (1980) middle age was a period when adults faced conflict between generativity and stagnation. Generativity – the process of making a contribution to the next generation – can be realized in a variety of ways through personal (family) or career attainments that provide a basis for others to progress.
- According to Ryff & Singer, 2009, ‘Positive relationships with significant others in our adult years have been found to contribute to a state of well-being’. Most adults in the United States identify themselves through their relationships with family—particularly with spouses, children, and parents.
- Some middle adults also form the habit to “live out” their own youthful fantasies through their children. They try to make their teenage children the improved versions of themselves. Witnessing their children on the verge of becoming adults can trigger a midlife crisis.
- Most middle adults define the relationship with their parents as affectionate. A strong bond often exists between related middle and older adults. Although, it has been observed that the majority of middle adults do not live with their parents, and instead maintain frequent and positive contact.
- For most people, becoming a grandparent is a positive experience; but there is a clause attached to it – it largely depends on the age at which it happens. According to Szinovacz, 1998, ‘Nearly one third of grandparents enter grandparenthood ‘off-time’: either before 40 or after 60’.

13.6 KEY WORDS

- **Occupational adjustment:** It is a person’s adaptation to their work. This can be to the physical requirements, for example becoming fitter as a building worker or developing repetitive strain injury through data input or psychological adjustment to the pace of work, and the social challenges of the work place.
- **Midlife crises:** A loss of self-confidence and feeling of anxiety or disappointment that can occur in early middle age.

13.7 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short-Answer Questions

1. What are the psychological changes of middle age according to Erikson?
2. Briefly state the concept of occupational adjustment.
3. State the stable and unstable patterns of cognitive development.

Long-Answer Questions

1. Analyse the physical and cognitive development during middle adulthood.
2. Describe the relationship of maturing children and ageing parents.
3. Discuss the changes that occur during grandparenthood.

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13.8 FURTHER READINGS

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UNIT 14 LATE ADULTHOOD

NOTES

Structure

- 14.0 Introduction
- 14.1 Objectives
- 14.2 Late Adulthood: An Overview
- 14.3 Old Age
- 14.4 Theories of Aging
 - 14.4.1 Models of Successful Aging
- 14.5 Patterns or Stages of Grief
- 14.6 Personal Relationships with Adult Children
- 14.7 Answers to Check Your Progress Questions
- 14.8 Summary
- 14.9 Key Words
- 14.10 Self Assessment Questions and Exercises
- 14.11 Further Readings

14.0 INTRODUCTION

Late adulthood (old age) is generally considered to begin at about age 65. Erik Erikson suggests that at this time it is important to find meaning and satisfaction in life rather than to become bitter and disillusioned, that is, to resolve the conflict of integrity vs. despair.

14.1 OBJECTIVES

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

- Describe the physical and cognitive development during late adulthood
- Analyse the characteristics of old age
- Explain the different theories of aging
- Describe the different stages of grandparenting and patterns of grieving

14.2 LATE ADULTHOOD: AN OVERVIEW

Late adulthood is perhaps the most difficult of all to categorize precisely – mainly because there is very wide individual variation in the physical, cognitive and social processes of aging.

Physical development

In late adulthood, external physical changes include changes in the skin (wrinkling, loss of elasticity), loss of subcutaneous fat, thinning of the hair, and changes in general posture due to the loss of collagen between the spinal vertebrae. There are also many internal changes, less apparent to the onlooker but important to the functioning of the aging individual. These include changes to the cardiovascular system and loss of cardiac muscle strength, decline in muscle mass and reductions in the efficiency of the respiratory, digestive and urinary systems.

Lifestyle

But, although physical change is inevitable, the timing and extent are highly variable (and, to some degree, influenced by the behavioural choices and lifestyle of the individual). For example, aging of the skin is affected by exposure to sunlight, physical strength and fitness decline less in people who exercise regularly, and the well-being of the digestive system is influenced by diet and drug use. Physical and sensory capacities, so important in our earliest encounters with the world, also tend to decline with age. Manual dexterity is reduced, and the visual system becomes less effective. The older person's pupils become smaller, and the lens of the eye becomes less transparent (and so less sensitive to weak lights, and less able to adapt to darkness) and less able to accommodate. Hearing, taste, olfaction and touch all become less sensitive during later adulthood.

If perceptual abilities were so vital at the outset of life, what are the psychological consequences of beginning to lose them?

Imagine becoming less able to listen to music, experiencing difficulties in attending to conversations, or finding that food and drink seem less interesting. Research indicates that our physical senses remain important at this end of the lifespan, too. There is a strong connection between sensory functioning and intelligence in old age. Gradual deficits in hearing can affect older people's ability to process speech in the context of other noise, which in turn affects how easily they interact with other people.

Coping

Certainly, the decline of abilities that were once taken for granted can lead to a reduced sense of competence for the older person. And the curtailment of activities that were previously enjoyed can affect people's assessment of their quality of life. But, once again, the extent of the impact of biological decline varies from person to person, and is influenced by both the rate of change and the individual's coping skills (which are, in turn, influenced by personality and social circumstances).

Cognitive development

Does intellectual capacity decrease with age? Let us return again to Schaie's data on primary mental abilities across the lifespan. Look at the average performance

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of 67-year-olds compared to adults in mid-life, and you will see evidence of some decline. At this stage it is not particularly dramatic, but our eyes are drawn to the right of the figure, where we see more marked reductions in the performance of people in their 70s and 80s. It seems that by the mid 60s, the downward trend is set. But take another look. If we compare the performance of the 67-year-olds with the 25-year-olds, it turns out that they are very similar on three of the measures, and only slightly poorer on two of them. On average, people in their mid 60s are performing on these tests at roughly the same level as those in their mid 20s. Schaie's and other research also shows that while there is variation between age groups on some measures of intellectual performance, there is also great variation within groups – and this variation within groups increases with age. Older people do tend to perform less well than younger adults on tasks dependent upon reaction time and processing speed. Some researchers have also reported that older adults perform less well on Piagetian-type tasks measuring formal operations.

But these differences do not necessarily support the conclusion that intellectual capacity in the elderly is pervasively inadequate. Intelligent behaviour in everyday life typically involves several capacities, and people may be able to compensate for reductions in one ability (such as processing speed) by placing greater weight on another (such as judgement based on experience). Another myth debunked Many of the studies that point to age-related differences are based on different cohorts – that is, groups of people who were born at different times, and experienced different educational systems. Some studies compare young adults at university with older adults drawn from the broader community, which confounds education with age. Hooper, Hooper and Colbert (1985) addressed this issue by comparing students of different age groups, and found that older participants' (aged 61–80) performance on formal reasoning tasks was comparable to those of the young people.

Psychological Aspects

Theorists such as Erikson and Erikson (1997) and Levinson (1978) regarded late adulthood as another major stage of adult development. Erikson and Erikson again saw the individual as facing a conflict – this time between integrity and despair. They maintained that as people realize they are coming towards the end of their life, they reminisce about their past and review how they feel about themselves. Have I met life's challenges successfully/achieved goals that I value/contributed to the wellbeing of those I care about? Or have I failed to realize my potential/wasted time in pointless work or futile relationships/been a burden to others?

Erikson and Erikson believed that individuals who arrive at a predominantly positive view (i.e. regarding their life as integrated and successful) experience a more contented late adulthood.

Levinson saw the period from approximately 60 to 65 as the late adult transition, when the individual has to deal with intrinsic changes in capacity and

performance, as well as changes in relations with others and in society's expectations. One of the key aspects of many people's adult life – their job – is now approaching its end, or has already concluded. All of these changes pose challenges.

How do older people cope with the demands of aging and their changing social status? Not surprisingly, the answer is that there is considerable variation.

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14.3 OLD AGE

Although there are losses and declines with age, we have already seen that many people respond to them adaptively – one of the remarkable characteristics of human beings throughout the lifespan is our resilience. For example, there is little evidence among older people of a direct link between physical decline and psychological problems such as depression. Many older people adjust well to the changes associated with aging, and report high levels of enjoyment of life in their later years. What factors promote successful aging? In many respects, this is one of the developmental issues facing us all. In recent years, lifespan developmental psychologists have begun to provide valuable insights. As you might expect, social support and social networks emerge as primary considerations: people with better levels of social support from family and friends tend to enjoy better physical and mental health in the later years.

Paul and Mary Baltes and their colleagues have investigated the processes of successful aging among participants in the large-scale Berlin Aging Study. They have proposed a model of 'selective optimization with compensation', according to which people face problems associated with aging by finding ways to handle cognitive tasks that minimize their dependency on their declining biological capacities.

A concrete example is provided in a study of younger and older golfers conducted by Over and Thomas (1995). The younger players (average age 34 years) were stronger than the older (average age 62 years), and they had better vision, so they had the advantage when it came to driving off and striving for distance.

However, the older golfers had certain advantages of their own: they were less prone to be affected by negative emotions and cognitions about the game, they were better able to prepare mentally, and they were more cautious. The two age groups in fact performed to the same handicap level, but did so via different combinations of abilities. The older golfers were apparently exploiting the fact that there are some areas of intellectual performance that improve with age. Such improvements are usually connected with pragmatic reasoning rather than with mechanical/motor abilities. For example, researchers have found that older people show evidence of increasingly complex reasoning about interpersonal issues, life planning and moral dilemmas, and they perform better than younger adults with respect to oral narrative production.

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The good news for aspirant psychologists is that a professional life involved in cognitively challenging and stimulating work appears to promote the prospects for successful aging. Indeed, Hogan (2000) points out that there are over 30 former presidents of the American Psychological Association who have lived into their 90s, often continuing their work and enjoying social and leisure activities until very late in life.

Characteristics of Old Age

Old age is considered the closing period of an individual's life. Psychologically, it may be a difficult time for most individuals as they find themselves closer to death and are forced to deal with the problems of age such as forgetfulness, rigidity of thought, and physiological ailments as well. Socially, old age is looked upon in different ways in different countries. For example, in India, the aged in the family are accorded respect and their opinions valued, while in America and other Western countries, old people are looked upon, generally, as caricatures of their former younger selves who are now 'senile' and 'useless'.

These widely different beliefs and the personal psychological mindsets decide if an individual's old age will be happy or desolate. If an aged individual has managed to save enough money, their partner is alive and they are relatively illness-free, old age can be a time of indulgence and relaxation. Ideally, old age, as per the ancient tradition in India, is supposed to be exactly that. In the Indian cultural tradition, old age is a time when one's children have grown up and become financially self-sufficient, and are settled with a spouse and children. So, the old parents can then rely on their children to support them financially and emotionally. Aged people can also derive enjoyment from spending time with their grandchildren.

As an individual ages, from the time of childhood, the changes are considered to be evolutionary, in the sense that the changes help the person grow, learn new things and gather new experiences. After the individual turns sixty, and old age is said to have set in, the changes then become involitional, meaning regressive in nature. In old age, the person, generally, does not learn as much as forgets, and while health may not deteriorate at the same pace for all individuals, there is little chance of improvement. This period in an individual's life is also known as senescence. However, there is a large difference between 'senescence' and 'senility'. While senescence only refers to old age, senility refers to the loss of normal mental faculties in the old age. So, while all senile people may be going through senescence, all people going through senescence are not senile.

Decline in old age is both physical and psychological, as mentioned earlier. The physical decline is due to the decay caused by the ageing process in the cells of the body, and the psychological decline is likely to be caused by negative conditioning of thoughts and attitudes regarding one's self-esteem, place in the society, undue importance to other people's opinions, thoughts of mortality and so on. Individuals who are unable to find things that interest them after retirement

from work are likely to decline faster than those who keep themselves busy and mentally occupied. Sitting idle can lead a person to become depressed and disorganized, which in turn, may accelerate death. A motivated individual, who doesn't pay much attention to the age number, is interested in maintaining a youthful appearance, and maintains friends and other hobbies is likely to have much happier and fruitful old age than one who loses interest in maintaining their appearance and engaging with friends and family. The most positive way of looking at old age is a time of relaxation and freedom from day to day responsibilities of children and work and using the time to travel, indulge in hobbies like music and painting, making friends and maintaining one's appearance as before.

Process of Aging

Life expectancy does not only mean length of life, but it also refers to one's quality of life. It not only looks into how old one will become, but also how one will become old. It is concerned with the process of aging. In fact, one's life expectancy greatly depends on his or her life style.

The demographic transition, the decline in mortality, followed with some lag by a decline in fertility and diminished population growth rates, has greatly increased longevity. The process of aging is a multidimensional process which is affected by a complex pattern of interaction between a variety of biological, social, economic, historical and ecological variables.

A broad range of inter-individual differences within age groups have been seen in terms of levels of biological, psychological and social functioning, suggesting that the belief that with increasing age, a general and a universal decline in all areas of an individual's functioning is seen, is incorrect. Age group studies have highlighted individual differences and the multi-factorial determination of changes in old age and have led to the concept of differential gerontology. These studies have also proved that unlike the generally held notion, the behaviour of elderly people is flexible and can be influenced, and have taught us to regard concepts such as 'age decay' or 'age norm' as largely relative in nature.

Research has also shown that several factors like education, health, housing conditions, socio-economic status, etc. have an effect on the process of aging. Longitudinal studies have reported different inter-individual patterns of intra-individual processes, pointing out the processes of aging in which individuals differ from each other. Biological, social, economic, historical and ecological factors and the interaction between them determine both the present life situation of the aging person and his future orientation which has significant implications on his quality of life. Below, we shall study some of the factors that influence and get influenced by the process of aging.

Since the time of conception, the individual goes through various stages in his or her life, which are an integral part of the process of aging. Unlike the west,

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where life begins at birth, the Indian perspective regards conception as the beginning of life. In it, the various stages of life have been divided into various *Ashramadharmas*.

These *Varna Ashrama Dharma* or *Varna Ashrama Vyavastha* prescribes a life style for the fulfilment of the four *Purusharthas*. The terms *Dharma* or *Vyavastha* basically mean the scheme or pattern of life. This *Varnashrama Vyavastha* consists of two separate schemes *Varna Vyavastha* and *Ashrama Vyavastha*. The *Varna Vyavastha* is the scheme meant for the maintenance of social order, whereas, the *Ashrama Vyavastha* is a scheme which takes care of the individual's personal life. The Indian perspective believes that an individual's relationship with the society is of utmost importance and a person's personal needs also have to be taken care of. For harmonious living, there has to be a proper balance between an individual's personal and social life.

The transition from one stage to the next is marked by certain rites and ceremonies, which are symbolically significant in integrating the child with the larger society and in teaching the caretakers to adopt stage specific child rearing attitudes and behavioural techniques.

14.4 THEORIES OF AGING

Let us begin by studying the theories of biological aging.

Biological Aging Theories

Theories of biological aging need to explain how aging relates to the evolution process. More specifically, if the evolution process has caused organisms to evolve myriad other ways to survive longer and reproduce more, why does aging still exist? As summarized below, aging theories propose three different answers to this question and are based on three different versions of Darwin's survival of the fittest idea.

Simple Deterioration Theories – Fundamental Limitations – ‘Wear and Tear’

Many people believe that biological aging is simply the result of universal deteriorative processes such as oxidation, entropy or wear and tear that cause aging in machinery, exterior paint and other inanimate objects. These theories are superficially attractive if only human aging is considered but fail if life span characteristics of other species are also examined.

As we learn in biology class, Darwin's 'survival of the fittest' idea says that the evolution process causes organisms to acquire inheritable design characteristics or traits that help them to survive longer and breed more. Deterioration and death from aging clearly does not help humans to live longer and breed more so why do we age? Wouldn't the evolution process have led to longer and longer lived animals

eventually resulting in immortality? Contemporaries actually wrote to Darwin and asked this question! The obvious answer is that aging results from fundamental limitations such as laws of physics or chemistry that, by definition, cannot be overcome by the evolution process.

Evolutionary Value of Survival Declines with Age

Peter Medawar, a famous and eventually Nobel-prize winning British zoologist published a modification to Darwin's theory in 1952 that is important to all subsequent evolutionary theories of aging. He suggested that the evolutionary need to live longer decreases following the age at which an organism is first capable of reproducing and also depends on many other internal and external circumstances that are specific to a particular species such as gestation time, mating seasons, predation and seasonal attrition. Although theorists now disagree regarding details of Medawar's hypothesis everybody agrees that an organism that died of old age prior to reaching puberty would not make logical sense. There would therefore be strong evolutionary force toward avoiding aging until the age at which an organism could complete a first reproduction. Medawar further suggested that there would be no evolutionary benefit from a species evolving ways to overcome internal causes of deterioration (aging) beyond the age at which essentially all of the individuals would have died from external causes. If a thousand mice were born today we could easily imagine that under wild conditions few would survive more than two years and therefore the internal ability to survive longer would not have any evolutionary value. This hypothesis was widely embraced by bio scientists because it provided a good explanation for the gross variation in life spans seen in different, but biochemically similar, species.

Medawar's idea was that under wild conditions, aging did not cause any significant deleterious effect on a species population. Immortality, or even just a somewhat longer lifespan would not help a population and therefore did not evolve.

Modern Non-Programmed Aging Theories

Modern non-programmed aging theories are based on Medawar's hypothesis, which holds that organisms can and do evolve myriad complex biological mechanisms directed at achieving a lifespan at least able to complete a first reproduction and that the design of any organism must support surviving for a particular minimum lifespan.

Multiple theorists including G. Williams and T. Kirkwood subsequently attacked Medawar's idea by observing that aging did not cause at least some deleterious effect on wild mammal populations contrary to Medawar's zero-disadvantage idea. Wild animal studies confirmed this by showing that wild animal death rates increased with age, which presumably would not happen in an immortal population, or one in which aging caused no disadvantage. These theorists therefore concluded that aging must convey some compensating benefit to offset the declined

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but still non-zero disadvantage of aging. Some non-programmed theories content that aging is an unavoidable adverse side-effect of some beneficial function. Because of Medawar's declining value hypothesis, a beneficial function that contributed to an animal's early life in even a minor way could offset even catastrophic disadvantage (e.g. death of old age) in later life. All such theories have to explain why the evolution process was unable to find a way to accomplish the beneficial effect without the adverse side-effect, a significant difficulty and one of the problems with non-programmed theories.

Population Benefit Evolution Theories

Beginning in 1962, a series of new modifications to Darwin's survival of the fittest idea appeared to the effect that an organism trait that caused a long-term or population benefit such as decreased probability that a species would become extinct could evolve even if that trait caused some degree of short-term or individual disadvantage such as reduced probability that an individual would produce adult descendants. There are not multiple theories including group selection (benefit to a group can offset individual disadvantage), kin selection (benefit to close relatives can offset individual disadvantage) evolvability theory (traits that increase a population's ability to evolve can offset individual disadvantage) and gene-oriented theories (traits that assist propagation of genes can offset individual disadvantage).

Darwin's evolutionary concept (random mutations occur, natural selection selects those that increase the possessing individual's ability to survive and reproduce) is incompatible with the population benefit theories. However, in the intervening 150+ years enormous advances in our understanding of the biological inheritance process have led to an understanding that the evolution process is actually much more complex than suggested by Darwin. Some of the additional complexities specifically favour the population benefit concepts and there is now an extensive theoretical basis for the idea that the population benefit theories (maybe even all of them) are valid. In addition to aging the population benefit theories provide explanations for other observations that appear to conflict with Darwin's ideas including animal altruism, sexual reproduction, some mating rituals, and delayed puberty.

Programmed Aging Theories

Programmed aging theories are based on the idea that living too long creates an evolutionary disadvantage and that therefore organisms evolved a suicide mechanism or senescence program that purposely limits the lifespan of the organism beyond a species-specific age. These theories are based on Medawar's idea that the evolutionary benefit of survival declines with age and also the idea that a limited lifespan creates benefit according to one of the population benefit theories. Collectively, these theorists have suggested many ways in which purposely limited lifespan creates population benefit. According to programmed theories, the

compensating benefit of aging is a direct population benefit instead of a side-effect of some individual benefit.

Programmed theorists suggest that each organism has an optimum lifespan determined by many internal and external species-specific circumstances. Regulated programmed aging theories suggest that an organism design having the ability to adjust (regulate) an individual's lifespan in response to sensing local or temporary changes in internal or external conditions that affect optimum lifespan such as famine, drought, or reproductive conditions would provide an evolutionary benefit. Regulated mechanisms are common in biology and regulation of lifespan in response to temporary conditions like famine or drought matches observations like experiments showing that caloric restriction increases lifespan.

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14.4.1 Models of Successful Aging

Subjective well-being reflects an individual's overall evaluations of his or her life. Here, we will investigate whether there are age differences in these evaluations as this is a topic of on-going debate. Indeed, different theoretical perspectives offer different accounts of the determinants of life satisfaction which translate to different predictions regarding age differences in subjective well-being. According to early theories of subjective well-being, people's happiness results most directly from the objective circumstances of their lives. For instance, to derive a life satisfaction judgement, a person might review the objective conditions of his or her life, weight each condition based on its relative importance, and then sum across those evaluations to create an overall judgement (Campbell et al, 1976). If this model is correct, then a great deal of between-person variation in subjective well-being should be accounted for by demographic variables. Furthermore, as an individual's physical health, financial status, or social relationships change over time, his or her life satisfaction judgements should also change. Because aging tends to be associated with poorer health, less money, and fewer social contacts (Baltes and Mayer, 1999), these early models of well-being would predict that average levels of happiness and life satisfaction should decline in old age.

Despite the intuitive appeal of this model of the determinants of life satisfaction, recent evidence has led many researchers to question this approach. Although demographic characteristics reliably predict well-being, they account for a relatively small amount of variance (Diener et al. 1999). Therefore, rather than influencing life satisfaction directly, objective circumstances may affect well-being through a variety of subjective processes (Diener and Lucas 1999). Factors such as a person's prior standing in a domain, his or her expectations for the future, and his or her temperament-based reactivity to positive and negative events might moderate the impact that specific experiences have on his or her life satisfaction. In support of this idea, researchers have shown that subjective well-being variables tend to be moderately to strongly correlated with personality characteristics, such as extraversion, neuroticism and self-esteem (Steel et al. 2008).

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If life satisfaction is influenced by relatively stable aspects of temperament, then mean levels of well-being may remain stable over the lifespan or largely mimic the patterns observed for these related personality traits.

In contrast to the classical and dispositional (or essentialist) perspectives, socio-emotional selectivity theory posits that people might actually become happier and more satisfied with their lives as they get older. Carstensen (1995) argued that as people move into their final years of life, they become increasingly conscious of the amount of time they have left to live. This awareness of impending mortality may lead older individuals to focus on ways to make their remaining experiences as enjoyable as possible. For instance, compared to younger individuals, older people tend to place a greater emphasis on emotional aspects of potential social interactions and are more likely to remember the emotional content of their experiences (Carstensen et al. 1999). Older people may also be more adept at regulating their emotions than younger people (Gross et al. 1997). Taken together these processes should lead to increases in life satisfaction across the lifespan.

14.5 PATTERNS OR STAGES OF GRIEF

The following explains the stages of grief based on research by Kubler-Ross:

- **Denial:** This reaction is normal when we hear about a terrible accident, sudden death or diagnosis of a disease. It seems unbelievable at first. Shock and numbness are two other emotions that follow. Pain, sadness, and guilt can be associated with this stage after the initial shock wears off.
- **Anger:** Anger comes when the surviving individual realizes denial is no longer an option. This is the most difficult stage to manage. People in this stage may lash out at those around them that are trying to provide support. Human nature wants to blame someone or something for the loss. It is at this stage that people often ask, “why me?”
- **Bargaining:** Bargaining almost always involves a conversation with a higher power. This stage is more common in a person diagnosed with a terminal illness than with someone who has experienced a death in the family. However, according to Kübler-Ross and her followers, it is still part of the grieving process and typically follows a stage of anger.
- **Depression:** This stage has the potential of mostly developing into devastating grief. The terminally ill person realizes his or her certain death, and may see the situation as utterly hopeless. It is important to differentiate between normal sadness due to a loss and clinical depression. Even if depression comes later than people think it should, or lasts longer than

others wish it would, it is a normal stage in the grieving process and, according to Kübler-Ross, must be worked through. Emotions like despair, emptiness, and feelings of isolation and extreme sadness are common during this stage.

- **Acceptance:** This is the final stage in the grieving process. This is the place that everyone experiencing grief strives to reach. For the dying individual, this is the stage in which one accepts things for what they are, makes peace with the world, and prepares for a dignified passing.

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Work Retirement and Leisure

Retirement which is defined as an individual's exit from the workforce, is usually accompanied by a behavioural withdrawal from work. While retirement was seen as a crisis in the past, it now stands as an opportunity for individuals to engage in different types of work, and to dedicate more time in their community with friends and family. Cross-national studies have been conducted to clarify the impact of preparedness on the temporal process of retirement: decisions, transition, and adjustment to retirement. Nevertheless, societies are constantly changing and future research, with the frameworks discussed in this chapter in mind, can continue investigating the concepts of retirement to help individuals prepare better.

According to Wang and Shi (2014), 'Retirement is an individual's exit process from the workforce, which is usually accompanied by both a decrease in psychological commitment to work and an increase in behavioural withdrawal from work. In the past, retirement was perceived as a "crisis" that negatively impacted the retiree's well-being.' Subsequent research has acknowledged the beneficial effects of retirement.

According to Wang & Shi, 'Retirement planning typically begins years before the individual desires to retire. Individuals start saving for retirement and discuss retirement plans with friends, family members, and current colleagues'. The specific time when individuals first engage in retirement planning depends on several factors, such as the norms and institutions of the society or the organization. If the organization promotes (early) retirement, the individual will have more resources at work with which to engage in retirement planning. Taylor-Carter, Cook, and Weinberg (1997) have argued that retirement planning can be categorized as financial planning (focusing on private savings) and cognitive planning (exploring the possibilities of work and social interactions in the future). Both types of planning are important because they describe different aspects of the postretirement life that can be improved via preretirement planning. Financial planning allows the individual to engage in nonpaid activities during retirement, if desired, and reduces planning costs (e.g., economic and psychological barriers to acquiring information, calculating numbers, and developing a plan; van Rooij, Lusardi, & Alessie, 2011).

14.6 PERSONAL RELATIONSHIPS WITH ADULT CHILDREN

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Most of the older people—80 to 90 per cent—have grown children, and enjoy frequent contact with them. Although the elderly enjoy these contacts they do not want to live with their grown children. Instead, they want to live in their own homes and remain independent for as long as possible. They would rather move into a private room in an assisted living facility or group home than move in with their children. At any one time, only about 5 percent of adults over age 65 live in an institution. More than 75 percent of institutionalized older adults, however, live within an hour's drive of one of their children.

As for the quality of the relationship between older adults and their grown children, most research suggests that the elderly rate their experiences as positive. This particularly holds true when they have good health, enjoy common interests, and share similar views with their children. The elderly do not necessarily rate as positive frequent contacts with their children when these contacts come from long term illness or family problems (a daughter's divorce, for example).

The potential for elderly abuse, or the neglect and/or physical and emotional abuse of dependent elderly persons, creates one very disturbing aspect of older adulthood. Neglect may take the form of withholding food or medications, not changing bed linens, or failing to provide proper hygienic conditions.

Elderly abuse most commonly takes place in the homes of the older person's spouse, children, and grandchildren. . In fact, the person who lives alone has a low risk of becoming a victim of this form of abuse.

The typical victim is an older adult who is in poor health and lives with someone else. Both victims and abusers require treatment, whether individual, family, or group therapy. The main goal, however, is ensuring the safety of the elderly victim. The law requires many licensed professionals, such as clinical psychologists, to report known cases of elderly abuse to the authorities.

Different Stages of Grandparenting

On average, men become grandfathers at age 52, and women become grandmothers at age 50. Therefore, grandparenting hardly restricts itself to older adults.

Although idealizing grandparenting is easy to do, the quality of grandparent-grandchild relationships varies across and within families. Generally, the majority of grandparents report having warm and loving relationships with their grandchildren. In addition to helping their grandchildren develop an appreciation for the past, positive grandparenting helps older adults avoid isolation and dependence while

finding additional meaning and purpose in life. Grandparenting also facilitates personality development in later life by allowing older adults opportunities to reexamine and rework the tasks of earlier psychosocial stages.

Friendships and Siblings

Friends provide support, companionship, and acceptance, which are crucial to older adults' sense of self esteem. They provide opportunities to trust, confide, and share mutually enjoyed activities. They also seem to protect against stress, physical and mental problems, and premature death.

Having close friends in later life, as in any other period of life, consistently corresponds with happiness and satisfaction.

Because older men more likely rely on their wives for companionship, older women typically enjoy a wider circle of close friends. Older men, however, develop more other gender friendships, probably because women generally live longer than men, meaning more women than men are available for such friendships. When older women can find available men with whom to be friends, they may hesitate to become too close. This is especially true if either are married. These women may also worry about what others are thinking, as they do not want to appear improper or forward.

Sibling contact and sibling support both vary inversely with age. In comparison to people in young adulthood and middle age, older people have less contact with siblings, and they also receive less assistance from siblings.

In adults, sibling ties in general provide more help in the form of social companionship and emotional support, and less in instrumental support.

Check Your Progress

1. Define late adulthood.
2. What causes physical decline in old age?
3. Define denial as a process of grieving.

14.7 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. In late adulthood, external physical changes include changes in the skin (wrinkling, loss of elasticity), loss of subcutaneous fat, thinning of the hair, and changes in general posture due to the loss of collagen between the spinal vertebrae. There are also many internal changes, less apparent to the onlooker but important to the functioning of the aging individual.

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2. The physical decline is due to the decay caused by the ageing process in the cells of the body, and the psychological decline is likely to be caused by negative conditioning of thoughts and attitudes regarding one's self-esteem, place in the society, undue importance to other people's opinions, thoughts of mortality and so on.
3. Denial is normal when we hear about a terrible accident, sudden death or diagnosis of a disease. It seems unbelievable at first. Shock and numbness are two other emotions that follow. Pain, sadness, and guilt can be associated with this stage after the initial shock wears off.

14.8 SUMMARY

- Late adulthood is perhaps the most difficult of all to categorize precisely – mainly because there is very wide individual variation in the physical, cognitive and social processes of aging.
- In late adulthood, external physical changes include changes in the skin (wrinkling, loss of elasticity), loss of subcutaneous fat, thinning of the hair, and changes in general posture due to the loss of collagen between the spinal vertebrae.
- Theorists such as Erikson and Erikson (1997) and Levinson (1978) regarded late adulthood as another major stage of adult development. Erikson and Erikson again saw the individual as facing a conflict – this time between integrity and despair.
- Although there are losses and declines with age, we have already seen that many people respond to them adaptively – one of the remarkable characteristics of human beings throughout the lifespan is our resilience.
- Old age is considered the closing period of an individual's life. Psychologically, it may be a difficult time for most individuals as they find themselves closer to death and are forced to deal with the problems of age such as forgetfulness, rigidity of thought, and physiological ailments as well. Socially, old age is looked upon in different ways in different countries.
- Decline in old age is both physical and psychological, as mentioned earlier. The physical decline is due to the decay caused by the ageing process in the cells of the body, and the psychological decline is likely to be caused by negative conditioning of thoughts and attitudes regarding one's self-esteem, place in the society, undue importance to other people's opinions, thoughts of mortality and so on.

- Modern non-programmed aging theories are based on Medawar’s hypothesis, which holds that organisms can and do evolve myriad complex biological mechanisms directed at achieving a lifespan at least able to complete a first reproduction and that the design of any organism must support surviving for a particular minimum lifespan.
- Programmed aging theories are based on the idea that living too long creates an evolutionary disadvantage and that therefore organisms evolved a suicide mechanism or senescence program that purposely limits the lifespan of the organism beyond a species-specific age.
- Most of the older people—80 to 90 per cent—have grown children, and enjoy frequent contact with them. Although the elderly enjoy these contacts they do not want to live with their grown children. Instead, they want to live in their own homes and remain independent for as long as possible.

NOTES

14.9 KEY WORDS

- **Medawar’s hypothesis:** It depends on the idea that the evolutionary importance of individuals in a non-aging population declines with calendar age and that therefore natural selection allows the existence of progressively more negative traits with age, up to and including “death of old age.”
- **Social interaction:** A social interaction is an exchange between two or more individuals and is a building block of society. Social interaction can be studied between groups of two (dyads), three (triads) or larger social groups.

14.10 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short-Answer Questions

1. Write a short note on coping during late adulthood.
2. Briefly state the models of successful aging.
3. State the patterns or stages of grief.
4. Write a short note on work, retirement and leisure.

Long-Answer Questions

1. Describe the physical and cognitive development during late adulthood.
2. Analyse the characteristics of old age.
3. Explain the different theories of aging.
4. What are the different stages of grandparenting? Discuss.

14.11 FURTHER READINGS

NOTES

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