

ELEMENTS OF EDUCATION

BA [Education]

First Year



RAJIV GANDHI UNIVERSITY

Arunachal Pradesh, INDIA - 791 112

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About the University

Rajiv Gandhi University (formerly Arunachal University) is a premier institution for higher education in the state of Arunachal Pradesh and has completed twenty-five years of its existence. Late Smt. Indira Gandhi, the then Prime Minister of India, laid the foundation stone of the university on 4th February, 1984 at Rono Hills, where the present campus is located.

Ever since its inception, the university has been trying to achieve excellence and fulfill the objectives as envisaged in the University Act. The university received academic recognition under Section 2(f) from the University Grants Commission on 28th March, 1985 and started functioning from 1st April, 1985. It got financial recognition under section 12-B of the UGC on 25th March, 1994. Since then Rajiv Gandhi University, (then Arunachal University) has carved a niche for itself in the educational scenario of the country following its selection as a University with potential for excellence by a high-level expert committee of the University Grants Commission from among universities in India.

The University was converted into a Central University with effect from 9th April, 2007 as per notification of the Ministry of Human Resource Development, Government of India.

The University is located atop Rono Hills on a picturesque tableland of 302 acres overlooking the river Dikrong. It is 6.5 km from the National Highway 52-A and 25 km from Itanagar, the State capital. The campus is linked with the National Highway by the Dikrong bridge.

The teaching and research programmes of the University are designed with a view to play a positive role in the socio-economic and cultural development of the State. The University offers Undergraduate, Post-graduate, M.Phil and Ph.D. programmes. The Department of Education also offers the B.Ed. programme.

There are fifteen colleges affiliated to the University. The University has been extending educational facilities to students from the neighbouring states, particularly Assam. The strength of students in different departments of the University and in affiliated colleges has been steadily increasing.

The faculty members have been actively engaged in research activities with financial support from UGC and other funding agencies. Since inception, a number of proposals on research projects have been sanctioned by various funding agencies to the University. Various departments have organized numerous seminars, workshops and conferences. Many faculty members have participated in national and international conferences and seminars held within the country and abroad. Eminent scholars and distinguished personalities have visited the University and delivered lectures on various disciplines.

The academic year 2000-2001 was a year of consolidation for the University. The switch over from the annual to the semester system took off smoothly and the performance of the students registered a marked improvement. Various syllabi designed by Boards of Post-graduate Studies (BPGS) have been implemented. VSAT facility installed by the ERNET India, New Delhi under the UGC-Infonet program, provides Internet access.

In spite of infrastructural constraints, the University has been maintaining its academic excellence. The University has strictly adhered to the academic calendar, conducted the examinations and declared the results on time. The students from the University have found placements not only in State and Central Government Services, but also in various institutions, industries and organizations. Many students have emerged successful in the National Eligibility Test (NET).

Since inception, the University has made significant progress in teaching, research, innovations in curriculum development and developing infrastructure.

SYLLABI-BOOK MAPPING TABLE

Elements of Education

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Unit-II Aims of Education Individual and Social Aims; Democratic Aims; Vocational Aims; Moral and Cultural Aims	Unit 2: Aims of Education (Pages 23-34)
Unit-III Educational Structure Educational Ladder; Secondary Education Commission, Kothari Commission and New Education, Policy on the Structure; New Pattern of Education (10+2+3)	Unit 3: Educational Structure (Pages 35-70)
Unit-IV Educational Psychology Meaning, Nature and Scope of Educational Psychology	Unit 4: Educational Psychology (Pages 71-112)
Unit-V Stages of Human Development Heredity and Environment; Infancy; Childhood; Adolescence	Unit 5: Stages of Human Development (Pages 113-154)
Unit-VI Instincts and Emotions Meaning and Definition of Instinct; Instincts According to McDougall; Meaning and Definition of Emotion; Classification of Emotions, Theories of Emotion–(i) Central Theory of Emotion, (ii) The James Lange Theory of Emotion; Educational Utility of Instincts and Emotion\	Unit 6: Instincts and Emotions (Pages 155-174)
Unit-VII Educational Technology Meaning, Nature and Scope of Educational Technology	Unit 7: Educational Technology (Pages 175-221)
Unit-VIII Educational Sociology Meaning, Nature and Scope of Educational Sociology; Social Development and Education; Social Factors in Education; Socialization	Unit 8: Educational Sociology (Pages 223-257)
Unit-IX Educational and Social Change in India Modernization and Education; Agricultural, Industrial and Technological Developments; National Integration; International Understanding	Unit 9: Educational and Social Change in India (Pages 259-292)

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INTRODUCTION

Education is an effort of the senior people to transfer their knowledge to the younger members of the society. Emile Durkheim defines education as ‘the influence exercised by the adult generation upon those who are not yet ready for adult life.’ He further maintains that ‘society can survive only if there exists among its members a sufficient degree of homogeneity. The homogeneity is perpetuated and reinforced by education. A child through education learns basic rules, regulations, norms and values of society.’

Education is an essential prerequisite of modernization. It enables people to know the world beyond their own surroundings and transforms them to become rationalist and humanist in outlook and world view. However, it has to be kept in mind that education has got modernized and in turn is contributing to the process of modernization of the Indian society.

Modern education is open and liberal. The course contents are rational and in tune with the needs of the present-day society. The modern education lays emphasis on subjects like freedom, nationality, law, human rights, democracy and scientific world view. The other parts of education are the co-curricular and extra-curricular activities, which are often organized for total personality development of a student.

This book, *Elements of Education*, has nine units. The book deals with the concept and aims of education. It also deals with the Indian educational structure and policy. The book covers the importance of instincts and emotions in the field of education. It also has a unit on the educational and social change in India.

This book, *Elements of Education*, has been designed keeping in mind the self-instruction mode (SIM) format and follows a simple pattern, wherein each unit of the book begins with an *Introduction* followed by the *Unit Objectives* for the topic. The content is then presented in a simple and easy-to-understand manner, and is interspersed with *Check Your Progress* questions to reinforce the student’s understanding of the topic. A list of *Questions and Exercises* is also provided at the end of each unit. The *Summary* and *Key Terms* further act as useful tools for students and are meant for effective recapitulation of the text.

NOTES

UNIT 1 CONCEPT OF EDUCATION

Structure

- 1.0 Introduction
- 1.1 Unit Objectives
- 1.2 Meaning, Nature and Scope of Education
 - 1.2.1 Etymological Meaning of Education
 - 1.2.2 Brief Analysis of Some Definitions of Education
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1.0 INTRODUCTION

The word 'education' has a very wide connotation and is difficult to define. There is no single objective which can cover the entire life with its various manifestations. Philosophers and thinkers have defined education in accordance with their own philosophy of life due to which there are divergent concepts and definitions of education. The concept of education is like a diamond that appears to be of a different colour when seen from different angles.

In this unit, you will learn the meaning, definitions, types and scope of education. You will also study the meaning and importance of inclusive education.

1.1 UNIT OBJECTIVES

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

- State the meaning and the need of education
- Explain the nature and scope of education
- State the different forms of education
- Discuss the importance of inclusive education

1.2 MEANING, NATURE AND SCOPE OF EDUCATION

There are various schools of psychology which have influenced the interpretation of the educative process. Some psychologists think that a child's mind is a clean slate and a teacher could write anything on it. Others are of the view that a child is a clay and a

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teacher is a potter who could make anything out of it. All these different opinions have led to different interpretations and definitions of education.

Traditional education focuses on teaching, not learning. It assumes that for every ounce of teaching there is an ounce of learning by those who are taught. However, most of what we learn before, during and after attending schools is learned without it being taught to us. Children learn to walk, talk, eat and dress without being taught formally. Adults learn most of what they use at work or at leisure. Classroom learning is generally forgotten and what is remembered is mostly not so relevant.

Definitions Laying Stress on Inner Potentialities

Aurobindo, Gandhiji, Shankaracharya, Tagore and Vivekananda of India, and Aristotle, Nunn, Pestalozzi and Plato in the West come under this category.

Aurobindo defines education as ‘helping the growing soul to draw out that is in itself.’

Gandhiji speaks of education as, ‘By education, I mean an all-round drawing out of the best in the child and man—body, mind and spirit.’

Shankaracharya says, ‘Education is realization of the self.’

Tagore thinks, ‘Education means enabling the mind to find out that ultimate truth which emancipates us from the bondage of the dust and gives us the wealth, not of things but of inner light, not of power but of love, making the truth its own and giving expression to it.’

According to Vivekananda, ‘Education is the manifestation of divine perfection already existing in man—Education means the exposition of man’s complete individuality.’

Aristotle speaks of education as ‘the creation of a sound mind in a sound body.’ Education, according to him, should develop the body, i.e., the physical capacities of the child and the mind which means his intellectual, emotional, moral and spiritual capacities.

According to Percy Nunn, ‘Education is the complete development of the individuality so that he can make an original contribution to human life to his best capacity.’ The individual is a sum total of various constituents and all of these must be developed. Every individual is unique and as such the task of education is to cater to the individual needs. The development should take place to the maximum possible extent.

J. H. Pestalozzi defines education as ‘the natural, harmonious and progressive development of man’s innate powers.’ Man is endowed with certain inborn powers and capacities and the task of education is to bring about the development of these. Due regard should be paid in the process of education to the child’s nature and needs. Undue stress should not be laid on the development of some powers of the child at the cost of others. A proper balance should be struck in the development of the various innate powers of the child.

Plato said, ‘Education develops in the body and in the soul (of the pupil) all the beauty and all the perfection which he is capable of.’

Definitions Stressing the Social and Environmental Aspects

In the words of John Dewey, ‘Education is the development of all those capacities in the individual which will enable him to control his environment and fulfil his responsibilities.’

According to Redden, 'Education is the deliberate and systematic influence extended by the mature person upon the immature through instruction, discipline and harmonious development of physical, intellectual, aesthetic, social and spiritual powers of the human being according to their essential hierarchy by and for the individual and social uses and directed towards the union of the educand with the creator as the final end.' The ultimate goal of life is the union of the individual with God. This union can take place only when the various capacities of the child are developed for the good of the individual as well as that of society.

G. Thomson says, 'By education I mean the influence of the environment upon the individual to produce a permanent change in his habits of behaviour, of thought and of his attitude. Environment has various aspects—physical, social and cultural. Education should facilitate the task of adaptation of the child to his environment.'

A perusal of these definitions reveals that the definition given by Gandhiji is the best. Gandhiji had a scientific temper of mind. He observed facts, sorted them before accepting them and after weighing them well, he drew his conclusions. Gandhiji felt that while physical and intellectual development was necessary, the training of a child's heart and spirit was more important. He remarked: 'Literacy is not the end of education nor even the beginning. It is one of the means whereby man and woman can be educated. Literacy in itself is no education.' This aim is in conformity with the one accepted by the Board of Education in England: 'The aim of education should be to develop to the full potentialities of every child at school, in accord always with the general good of the community of which he is a member.'

Drawing out and not 'pouring in' has been stressed by Gandhiji. Gandhiji wrote, 'We have up to now concentrated on stuffing a child's mind with all kinds of information without even stimulating or developing it.'

Gandhiji fully realized that nature has endowed children and youth with tremendous vitality. They have within them the springs of youth, joy and vigour. They have the God-given curiosity to wish to know things for themselves. The task of education is to use these powers. It would be wrong to suppress them. This energy should be utilized and harnessed properly.

'True education,' says Gandhiji, 'is that which draws out and stimulates the spiritual, intellectual and physical faculties of the children.' Any programme of education that puts exclusive emphasis on one of these three aspects of the human personality is against the basic principle of education.

Meaning of the term 'best in child and man'. The best in child and man has three fields, i.e. body, mind and spirit. Education, therefore, must cater to the physical, mental and spiritual needs. No field should remain neglected. The best in man will include the harmonious development of the various faculties of man and child.

How can we draw out the best? The best can be drawn out by touching the hearts of the students. Gandhiji: 'If I was to be their real teacher and guardian I must touch their hearts. I must share their joys and sorrows, I must help them to solve the problems faced by them, and I must take along the right channel and surging aspirations of their youth.'

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Education as Continuous Reorganization and Integration of Activities and Experiences

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Education takes place when new ideas combine with the old. Something new is constructed by the synthesis of the two and this process goes on constantly through life. Education is growth and growth never stops. We learn in terms of the old. An intelligent order, sequence and continuity is to be maintained as the new thing can best be learnt in the context of the old one. Herbart's principle of 'apperception' points out the same fact.

Child is active by nature. He plays and does so many things but these undifferentiated experiences do not lead to education unless they are guided and properly directed. So the experiences of the child should be given coherence, unity and organization and education is to be consciously and deliberately planned by providing rich and creative activities and experiences to children. The experiences of the child should be well knit to give them meaning. Education entails bringing about the growth of the educand through experience and activity. Every experience and activity leads to some sort of learning and enrichment of the mind of the learner. These in turn enter into combinations and thus increase the ability of the new learner to direct further noble activities and experiences.

An activity passes through three stages. An example will make the three stages clear. A child sees a flame. He does not know what a flame is. In an impulsive reaction he tries to catch it.

In the second stage, he grasps the meaning of a flame. He gains the knowledge of heat and pain. His experience becomes purposeful.

In the third stage, the child begins to perceive new bearings and new connections. The mind at this stage combines old activities and experiences into new patterns to meet novel situations. Different experiences help us to meet new situations. It is generally observed that education must lead to experimentation, the discovery of new truths and the use of new truths to further education for the fuller intellectual growth and development of man. After all, education has to, and should go beyond tradition, dogma and static conditions, in a dynamic society.

Education is both retrospective and prospective. It is both conservative and progressive. Education transmits the culture of one generation to another. The rising generation has not only to be conveyed the activities and experiences of the past generation and asked to carry on those activities but it also has to be asked to make necessary changes in these activities and experiences to meet the new situations which it will encounter. An integration of the old must take place with the new ones. It must be remembered that communities live in the present on the past and for the future. This means that activities and experiences in the present will guide the activities of the future. Thus, education is continuous reorganization and integration of activities and experiences. Education is a constructive agency for improving our society. Brown has stated, 'Education brings changes in behaviour, and if its main functions are to remain mere transmission or enrichment of culture, it will fall short of its role in a dynamic society. Education must also provide situations at all age levels but within the maturity and ability of the individual to stimulate a creativeness of mind which can explore new horizons and bring the vision of the future into a living reality.'

Education: A Process of Self-realization

Education curbs the animal instincts in man and shows him the way to realize his latent powers. It thus makes the potential actual and makes explicit what is implicit in us. It is, therefore, development from within and not an accretion from without. It modifies the behaviour of the educand. Ross points out, 'Education thus consists in a modification of natural development which, as a result of education, is other than it would have been without it.' Education emancipates us from our oddities and infirmities. It is thus a process of sublimation of instincts. Education, therefore, may be visualized as a process of self-realization and emancipation.

The self-realization aspect of education is well emphasized by Gandhiji. To him, education is 'an all-round drawing of the best in the child and man—body, mind and spirit', education is a 'pouring out' and not a 'pouring in' process. The word *e* means 'out of' and *duco* means 'I lead'. In other words, education means leading out the inborn powers and potentialities and enabling the child to become what he is capable of becoming. The word 'self-realization' implies development of individuality in the child. We do not want our educands to be dumb driven, credulous creatures. Nunn points this out by saying that 'the complete development of individuality is the essence of education'. It is through this that 'he (educand) can make an original contribution to human life according to his best capacity.' The emancipation aspect of education has also been put forth by Tagore. According to him, education aims at 'enabling the mind to find out that ultimate truth which emancipates us from the bondage of dust and gives the wealth not of things but of inner light, not of power, but of love, making thus its own and giving expression to it'.

Education—A Lifelong Process

Education is a continuous and lifelong process. It is the process of development from infancy to maturity. It includes the effect of everything which influences human personality.

Education—A Bipolar Process

Both the educator and the educand influence each other. The personality of the educator modifies the behaviour of the educand and in turn is affected by the personality of the educand.

Education—A Tripolar Process

Education is also regarded as a tripolar process involving the influence of the personality of the educator on that of the educand in a social setting which affects the modification of the behaviour of the latter. The knowledge of the nature of the educand is at once very useful and essential. Similarly, the educator also must thoroughly understand himself—his assets and limitations and act accordingly in educating the educand. The social setting has to be presented by the educator to the educand in a simplified and purified manner. It must be remembered that the unconscious influence of the environment is subtle and pervasive.

Education—A Deliberate Process

The process of education is not only conscious but also deliberate. The educator is fully aware of the fact that his aim is to develop the personality of the child along definite lines through the modification of his behaviour.

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Education—A Psychological and Sociological Process

According to the psychological aspect of the process, the educator must understand the nature, interests, capacities and limitations of the child. The sociological aspect implies that the educator must also interpret the endowments of the child in a social setting.

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1.2.1 Etymological Meaning of Education

Etymologically, the word ‘education’ is derived from the following Latin words which are briefly explained here:

- (i) ‘Educare’: This means ‘to raise’, ‘to nourish’, ‘to bring up’.
- (ii) ‘Educere’: This implies ‘to draw out’, ‘to lead out’.
- (iii) ‘Educatum’: This denotes ‘to train’.
- (iv) ‘Educo’: ‘e’ meaning ‘out of’, and ‘duco’ meaning ‘to lead’, ‘to lead out’.

Thus education means:

- (i) to bring up
- (ii) to draw out
- (iii) to lead out
- (iv) to nourish
- (v) to raise
- (vi) to train

A synthesis of the meaning of these terms implies that education is drawing out and leading out something from within the individual by bringing up, nourishing, raising and training.

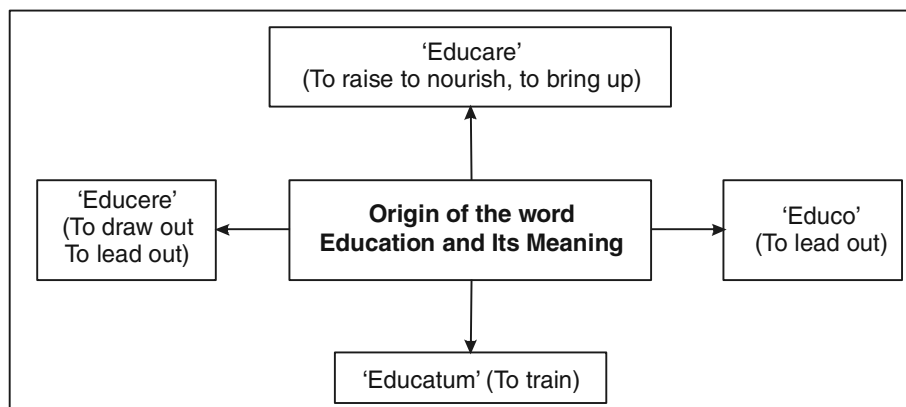


Fig. 1.1 Origin of the Term Education (Derivation or Etymology of Education)

1.2.2 Brief Analysis of Some Definitions of Education

- One of the oldest treatises on education titled *The Great Learning*, written around 2,500 years ago and attributed to Confucious, a great Chinese scholar and thinker, sets out the meaning, the aim and the process of education in these words:
‘The great learning consists in manifesting the clear character, loving the people and abiding in the highest grid. Those who wish to make their wills sincere would first extend their knowledge. The extension of knowledge consists in the investigation of things; when things are investigated, knowledge is extended;

when knowledge is extended, the will becomes sincere; when the will is sincere, the mind is rectified; when the mind is rectified, the personal life is cultivated; when the personal life is cultivated, the family will be regulated; when the family is regulated, the state will be in order; and when the state is in order, there will be peace in the universe’.

Although this definition does not make clear the meaning of terms like ‘will’, ‘knowledge’ and ‘cultivated’, yet it seems to be an operational one.

- According to Nunn, ‘Education is the complete development of the individuality so that he can make an original contribution to human life to his best capacity’. The individual is a sum total of various constituents and all these must be developed. Every individual is a unique one and as such the task of education is to cater to the individual needs. The development should take place to the maximum possible extent. This definition takes note of the needs of other human beings also.
- Thomson says: ‘By education I mean the influence of the environment upon the individual to produce a permanent change in his habits of behaviour, of thought and of his attitude. Environment has various aspects—physical, social and cultural. Education should facilitate the task of adaptation of the child to his environment’. The definition highlights the need for providing a suitable environment.
- According to Redden, ‘Education is the deliberate and systematic influence extended by the mature person upon the immature through instruction, discipline and harmonious development of the physical, intellectual, aesthetic, social and spiritual powers of the human being according to their essential hierarchy by and for the individual and social uses, and directed towards the union of the educand with the creator as the final end’. The ultimate goal of life is the union of the individual with God. This union can take place only when the various capacities of the child are developed for the good of the individual as well as that of society.

This definition points out the three-fold function of the educator. One, for the development of powers of the individual. Two, for enabling the individual to become a useful member of the society. Three, for assisting the individual to be one with the Creator. In other words, education should liberate the individual. The objective of life as attainment of ‘*Moksha*’ as advocated by ancient Indian seers is emphasized in this definition.

- Aristotle’s definition neglects the spirit and explains education only in terms of creation of ‘a sound mind in a sound body’.
- Gandhiji’s definition of education has already been analysed.

1.2.3 Functional and Operational Definitions and Meanings of Education

By education we mean the natural, harmonious and progressive development of man’s innate powers by drawing out the best in his body, mind and spirit so as to produce an individual who is culturally refined, emotionally stable, ethically sound, mentally alert, morally upright, physically strong, socially efficient, spiritually enlightened, vocationally self-sufficient and internationally liberal. This should be the end product of education. Any programme of education which puts exclusive emphasis on one of these aspects of the human personality will be considered as lop-sided and narrow. Broadly speaking, this functional and operational definition and meaning should guide us in planning and implementing our educational programmes.

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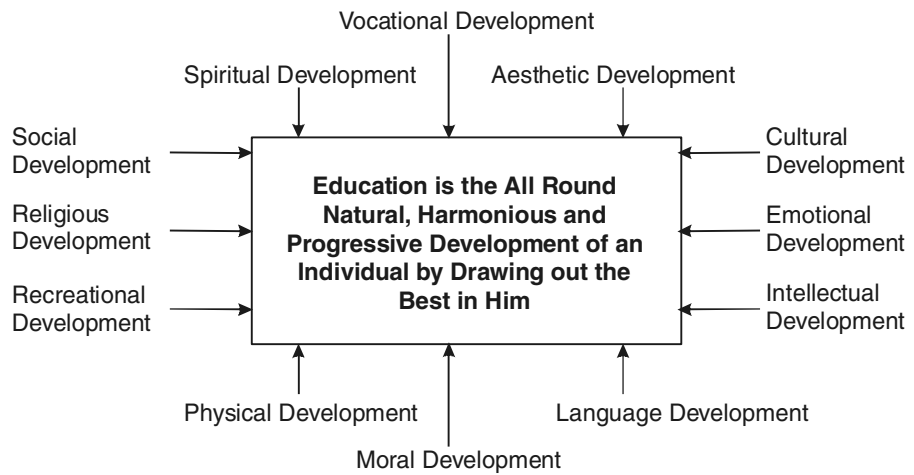


Fig. 1.2 Meaning of Education

Chief Characteristics of the Nature of Education

Following are the chief characteristics of the nature of education:

- *Education is purposive*, i.e., there is a definite purpose underlying all educational activities.
- *Education is deliberate*, i.e., education involves care and guidance.
- *Education is planned*, i.e., education is not haphazard. It is systematic.
- *Education is life-long*, i.e., education starts from the time of conception and goes on till death—education from cradle to grave as is sometimes said.
- *Education is influence exerted*, i.e., the mature persons (parents, elders and teachers) influence the learners.
- *Education is balanced development*, i.e., education is concerned with the development of all faculties of the child.
- *Education is bi-polar*, i.e., both the teacher and the pupil influence each other. Of course, the influence of the teacher is more prominent.
- *Education is tri-polar*, i.e., education involves the teacher, the taught and the environment or the subject-matter.
- *Education is psychological as well as social*, i.e., the endowments or the capacities of the child—his needs, interests, etc. must be interpreted and developed in a social setting.
- *Education is growth*, i.e., education modifies the behaviour of the child.

1.3 TYPES OF EDUCATION: FORMAL, INFORMAL AND NON-FORMAL

Education, in its widest sense, indicates ways in which people learn skills and gain knowledge, information and understanding. It can be divided into various ways of learning, namely formal, informal and non-formal or quasi formal.

Check Your Progress

1. What is education according to Dewey?
2. State any three characteristics of education.

1.3.1 Formal Education

Formal education is imparted in an educational institution—a school or college. In ancient times in India, it was mostly imparted at the residence of the teacher. It is consciously and deliberately planned to bring about specific changes in the educand or the learner. As such it is synonymous with educational institutions. School is the most important agency of formal education.

Important characteristics of formal education are as follows:

- Planned education keeping in view some definite aim
- Education imparted through well planned means or formal lessons
- Education having a definite course to be covered during a definite period
- A teaching–learning process with which the teacher and the learner are acquainted
- Education organized by some agency, say the government or a private enterprise
- Education imparted in an institution having building/premises
- Education starting and ending at a particular age
- Education associated with a degree or certificate
- Education usually associated with some sort of mental strain on the teacher and the taught

1.3.2 Informal Education

Informal education takes into its orbit all indirect influences of the home and the society. The press, the libraries, the films and other such agencies are included as agencies of informal education. Their influence is subtle and imperceptible but at the same time very important and significant.

Important characteristics of informal education are as follows:

- Unconscious learning
- No fixed aim
- No fixed curriculum, methods of teaching, etc.
- No organized body or institution behind this process
- Lifelong learning
- Natural outcome

1.3.3 Non-formal Education

This is an arrangement wherein flexibility is the key word. The system is an open one with regards to various aspects of education, i.e., admissions, curriculum, place of instruction, mode of instruction and the time and duration of instruction. Open university, open learning, correspondence courses and distant education are the various examples of such a system.

Some of the important definitions of non-formal education are:

- **Bremwork:** ‘Non-formal education differs from formal education from the point of proximity to immediate action, work and the opportunity to put learning to use.’
- **Coombs:** ‘Non-formal education is one which is imparted through organizations and institutions outside the formal education institutions.’

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- **Harbison:** ‘Non-formal education is the only means of filling the gap between the “Schooled” and “Unschooling population”.’
- **Henderson:** ‘Non-formal education is far wider and more inclusive than schooling which imparts wider experience out of school.’
- **Mc-Call:** ‘Non-formal education is the entire range of learning experience outside the regular graded school system.’
- **Paulson:** ‘Non-formal education includes any structured, systematic, non-school educational and training activities of relatively short duration in which sponsoring agencies seek concrete behavioural changes in fairly distinct target population.’

Main characteristics of non-formal education are as follows:

- *Learner-centred education:* It is based on the needs of the learners.
- *Lifelong process:* It continues throughout life.
- *Self education:* There is more emphasis on self-education.
- *Boom for drop-outs:* It provides suitable opportunities to those who on account of one or the other reason are unable to continue their formal education.
- *Motivational:* It is motivated by individual growth.
- *Community need based:* It takes note of the needs of the community and accordingly includes a variety of learning programmes.
- *No formal qualifications needed:* A large number of non-formal educational courses do not need minimum qualifications for entry.
- *Multi-dimensional:* It provides a variety of opportunities to update one’s knowledge and skills.
- *Supplementary to formal education:* It supplements the system of formal education which is rather expensive.
- *Multi-agencies:* It is provided by part-time schools, open schools, adult education centres and voluntary agencies.
- *Flexible system:* It is flexible in terms of hours of study, courses, examinations, duration, etc.

A comparative study of three types of education has been done in Table 1.1

Table 1.1 Formal, Informal and Non-formal Education: A Comparison

Area	Formal Education	Informal Education	Non-formal Education
1. Aim	It has definite aims.	It has no definite aim.	It has by and large clearcut aims.
2. Scope	Its scope is definite.	Its scope is not definite.	Its scope is generally definite.
3. Duration	It begins from school and goes up to university.	It is lifelong.	It can be lifelong.
4. Entry Points	It has fixed entry points.	It has no entry point.	Entry points are flexible.
5. Agencies	It is provided usually in full time educational institutions.	It has no definite agencies.	It is normally available through part time institutions.
6. Organization	It is an organized and planned effort. There is usually a recognized organization, which is more or less permanent.	There is no organization for it.	Organization may not be a permanent one. Ad-hoc organizations usually take up this work.

7. <i>Time Schedule</i>	Its schedule is fixed.	It has no fixed schedule.	Schedule fixed as well as not fixed.
8. <i>Level of Consciousness</i>	The teacher and the learners are aware of the process.	Unconscious process.	It is partly conscious.
9. <i>Methodology</i>	Formal, fixed and a variety of methods	There is no set methodology.	Flexible approach is followed.
10. <i>Teachers</i>	Trained teachers impart education.	It can be obtained from any source.	Trained teachers/instructors impart non-formal education.
11. <i>Place</i>	It is confined to the four walls of educational institutions.	It can be acquired at any place.	It mostly takes place outside the four walls of educational institutes.
12. <i>Environment</i>	Environment is more or less artificial.	Environment is natural.	Environment is artificial as well as natural.
13. <i>Curriculum</i>	Curriculum is fixed.	There is no curriculum.	Curriculum is very flexible.
14. <i>Discipline</i>	Discipline is normally strict.	Issue of discipline does not exist.	Discipline is rather flexible.
15. <i>Resources Required</i>	Relatively higher resources are needed.	Resources are not needed.	Comparatively less resources are required.
16. <i>Evaluation and Examination</i>	Examinations are regularly held.	There is no examination.	Examinations are not frequent.
17. <i>Award of Certificates and Degrees</i>	Certificate and degrees form an integral part.	Certificate/degree is not given or received.	Certificate or degree may or may not be awarded.
18. <i>Mental Stress</i>	It involves a lot of mental stress.	No mental strain is involved.	Usually no mental strain is involved.
19. <i>Motivation</i>	The teachers and learners are motivated.	Motivation is not involved.	Normally motivation on the part of the learners is quite high.
20. <i>Interaction</i>	There is face to face interaction which is quite visible.	Interaction is incidental.	Interaction depends upon the situation.
21. <i>Pass/Failure</i>	Students are labelled as having 'passed' or 'failed'.	Pass/Failure does not exist.	Normally it does not work on the principle of weeding out failures.
22. <i>Planning</i>	It is a planned system.	No planning is required.	Planning is flexible.

Examples of different types of education are given in Table 1.2

Table 1.2 Examples of Different Types of Education

<i>Types of Education</i>	<i>Examples</i>
1. Formal Education	School, College
2. Non-formal	Radio, TV, Press etc.
3. Informal	Social gatherings, Entire environment. Unconscious learning. Through imitation. Sitting on the table within a group. Street and marketplace.

Narrowing the Gap between Different Types of Education

The revolution in information and communication technology (ICT) and its use in the teaching–learning process has narrowed down the difference. The use of computers, radio and TV has introduced several elements of formal education into informal and non-formal education and vice versa. At one time radio and TV were used only for the

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purpose of non-formal education. Now they are being used in a planned way for formal education. In fact, there is a special TV channel for this purpose. It is estimated that at the higher education level, nearly 10 per cent enrolment is through Distance Education/Open Education. New slogans like 'Open Learning', 'University Without Walls' and 'Virtual University' are taking the place of formal education which at one time was confined to the 'four walls' of the school/college. Use of Internet for educational purposes has become very popular. Content on different subjects is now available in CDs. Students have the opportunities of pursuing their studies in their bedrooms. They can get university degrees without attending any institution.

1.3.4 Agencies of Education

It is rightly observed by Counts that 'The school is but one among many educational agencies.' The common belief that education is confined to schools and colleges is not entirely true. No doubt schools and colleges do occupy the most predominant place in the society as educational institutions. But when we use the word 'education' to denote the idea of the all-round development of the personality of an individual, we must recognize the role of other agencies of the society besides the schools and the colleges. Schools function for a short time daily. They function for only seven months during the year. The rest of the time the students spend outside the school premises—in the family, in the neighbourhood and with the peer groups. They are influenced by mass communication, media and other agencies like social education centres and libraries.

According to some educators, of all the education we receive, we learn one-fourth from our teachers, one-fourth from books, one-fourth from our colleagues and one-fourth from the overall environment. This indicates the type of education and the multitude of agencies of education.

Education in a wider sense takes place from the womb to the tomb, i.e., from conception to cremation. Education is a lifelong process. Education goes on whether we are aware of it or unaware of it. Thus there are several types of social institutions that impart education. There are active as well as passive agencies of education. Likewise there are formal, non-formal and informal agencies of education run and managed by government and private agencies.

Education imparted in formal agencies is called formal education. Education given in non-formal agencies is called non-formal education. Education received in informal ways is called informal education.

While discussing different types of agencies, it may be borne in mind that teachers are not the only educators. As observed by T. Ramount, 'Let us agree to recognize explicitly that in a real sense teachers are not the only educators. In other words, it is life that educates, the school provides a part of life's experience'.

By the agencies of education we mean various sources, i.e., the institutions and organizations that play their role in varying degrees in the process of education.

Agencies of education have been classified in various ways, as shown in Tables 1.3–1.5.

Table 1.3 Classification of Agencies into Formal, Informal and Non-formal Types

<i>Formal Agencies of Education</i>	<i>Informal Agencies of Education</i>	<i>Non-formal Agencies of Education</i>
1. School	1. Art Gallery	1. Adult and Social Education Centres
2. College	2. Cinema	2. Playground (when regular physical education is organized)
3. Home or Family (in the Past)	3. Home/Family	3. Radio (Educational Programmes)
4. Church (in the past)	4. Library	4. T.V. (Educational Programmes)
5. Adult school (on regular bases)	5. Museum	5. Professional Organizations like Teachers' Association when they organize seminars, workshops, etc.
6. Open school (when contact classes are also arranged)	6. Peer group	6. Clubs when educational talks etc. are organized.
7. T.V. (When used as an integral part of the curriculum and pre-telecast and post-telecast lessons are organized)	7. Playground (when not supervised by the teacher)	7. Cinema (When educational pictures are organized)
8. Radio (When used as an integral part of the curriculum and pre-broadcast and post-broadcast lessons are organized)	8. Press	8. Internet (When some educational course is organized)
	9. Reading Room	9. Correspondence Institutions
	10. Radio (Normal Programme)	10. Open Learning Institutions
	11. Television (Normal)	11. Distance Learning Institutions
	12. Voluntary Organizations like Bharat Sewak Samaj, Boy Scouts	
	13. Internet	
	14. State	

NOTES**Table 1.4** Classification of Agencies into Active and Passive Types

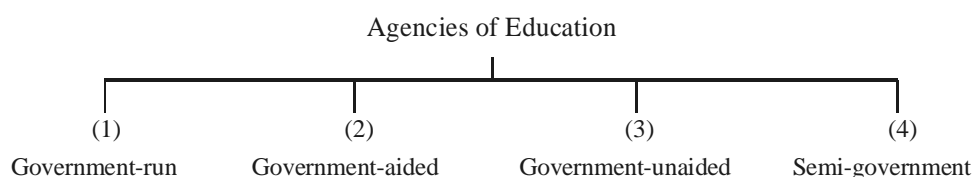
<i>Active Agencies of Education</i>	<i>Passive Agencies of Education</i>
1. The Family	1. Cinema
2. The School	2. Radio
3. The Community	3. T.V.
4. The Religion	4. Internet
5. The State	5. Library
6. Social Clubs	6. Magazines
7. Peers	7. Newspapers
8. Neighbourhood	8. Marketplaces
	9. Reading Room

Table 1.5 Classification of Agencies into Formal, Informal, Commercial and Non-commercial Types

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Formal	Informal	Commercial	Non-commercial
1. School	1. The Family	1. Cinema	1. Dramatic Clubs
2. Religious Institution	2. General Games	2. Radio	2. Social Welfare Centre
3. Library	3. The State	3. T.V.	3. Sports Club
4. Art Galleries	4. The Peer Group	4. Clubs	4. Scouting and Guiding
5. Museum	5. The Community	5. Newspapers	5. Youth Welfare Clubs
6. Zoo	6. The Society	6. The Press	6. Adult Education Centres
7. Organised Games			

Besides the above three broad categories, agencies of education are also classified into government-run, government-aided, government-unaided and semi-government types, as shown in the following chart.



Formal Agencies of Education for Formal Education

Formal agencies of education like schools and colleges impart formal education. These agencies are consciously and deliberately planned to bring about specific influences on the educand. They have regular working hours. They prepare students for taking public examinations on a regular basis. Usually they employ full time staff. They follow prescribed curriculum and textbooks. They have to conform to rigid departmental rules and regulations.

Informal Agencies of Education for Informal Education

The informal agencies do not follow any set pattern of instruction or education. In fact they impart education incidentally. Education is not organized deliberately in these institutions. These are informal groups. Education is indirect. One may learn without being conscious of it. Nevertheless influence of informal agencies of education is quite significant.

Non-formal Agencies of Education

‘Flexibility’ is the key-word in the case of non-formal agencies of education. The system is an ‘open one’ with regard to: (i) Admission, (ii) Curricular work, (iii) Place of instruction, (iv) Mode of instruction, (v) Time and duration of instruction, and (vi) Regular/temporary/part time staff. Open School, Open University, Open Learning Institutions and agencies imparting correspondence education come under non-formal agencies of education. Adult education agencies are usually placed under this category.

1.4 INCLUSIVE EDUCATION

Inclusion in education was once described as an approach wherein students with special educational needs spend most or all their time with non-disabled students. Research

suggests that inclusivity is no longer defined by physical and cognitive disabilities but also includes a full range of human diversity with respect to ability, language, culture, gender, age and of other forms of human differences.

Inclusive education 'is a process of strengthening the capacity of the education system to reach out to all learners'. It involves restructuring the culture, policies and practices in schools so that they can respond to the diversity of students in their locality.

For a school to be inclusive, the attitudes of everyone in the school, including administrators, teachers, and other students should be positive towards students with disabilities.

Inclusive education means that all children, regardless of their ability level, are included in a mainstream classroom, or in the most appropriate or least restrictive environment (LRE), that students of all ability levels are taught as equals, and that teachers must adjust their curriculum and teaching methodologies so that all students benefit. This also avoids wasting resources, and 'shattered hopes,' which often occurs in classrooms that are 'one size fits all.'

Studies have shown that systems that are truly inclusive reduce drop-out rates and repetition of grades, and have higher average levels of achievement, compared to systems that are not inclusive. People who believe in inclusive education believe that the education system is the impediment to learning for a child, and that every child is capable of learning!

As a system, inclusive education should be flexible. Its principle should be education in the regular classroom whenever possible. This need for flexibility must be reflected in the methods and materials used to give these children the widest possible access to the regular curriculum. When discussing the kind of service needed, the starting point should always be what is best for the particular child. Emphasising inclusive education does not rule out special schools or centres. They would still be required to cater to children with profound and complex difficulties in need of more specialized and extensive help, including e.g. many deaf children. This alternative should, however, not be considered, unless classroom placement cannot meet their needs.

In line with the new policy of inclusive education, special schools begin to function more and more as resource centres. They involve in outreach programmes, where they draw on their vast experience and knowledge. They link their activities with those of the regular schools, the families, and the communities.

Inclusive education services allow children with disabilities to stay with their family and to go to the nearest school, just like all other children. This circumstance is of vital importance to their personal development. Interrupting a disabled child's normal development may have far more severe consequences than the disability itself.

In this context, it is important to stress the role parents have. They have a right to be involved in all decision-making concerning their child. Parents should be seen as partners in the education process. Where there is such cooperation, parents have been found to be very important resources for the teachers and the schools.

As a rule, there are a number of practical problems that have to be solved before a child with special educational needs can go to school or take part in school activities. The arrangements it takes are fairly simple, provided coordinated local and unconventional initiatives are stimulated. One should also remember that the child's schoolmates represent a valuable potential partner who is ready and able to help in overcoming some of these problems.

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Benefits of Inclusive Education

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All children benefit from inclusive education. It helps them in the following ways:

- Develops individual strengths and gifts
- Works on individual goals while participating in the classroom activities along with the other children
- Involves the parents in the education and activities of the local schools
- Helps to adopt a school culture of respect and belonging.
- Provides opportunities to learn about and accept individual differences which helps to lessen the impact of harassment and bullying
- Develops friendships with other children, each with their own individual needs and abilities
- Helps to develop a positive attitude amongst the school and the community at large in favour of inclusive education

The curriculum for inclusive education should be based on the following parameters:

- **Child-centred:** Children with disabilities need child-centred curriculum, which takes into account the individual needs of the children. The curriculum needs to set specific, observable, measurable and achievable learning outcomes.
- **Flexible:** A flexible, locally relevant curriculum, teaching and learning strategies are intrinsically important for children with special needs to participate in the educational process.
- **Participatory:** Children with special needs require a learning environment in which they can actively participate in learning within small groups.
- **Partnership with parents:** Partnership with parents is a key factor as children learn not only in the classrooms but also at home.

Inclusive education must respond to all students as individuals, recognizing individuality as something to be appreciated and respected. Inclusive education responding to special needs will thus have positive returns for all students. All children and young people of the world, with their individual strengths and weaknesses, with their hopes and expectations, have the right to education. It is not our education systems that have a right to a certain type of children. Therefore, it is the school system of a country that must be adjusted to meet the needs of all its children.

Check Your Progress

3. What are the three types of education?
4. State any two characteristics of formal education.
5. What is informal education?
6. What is inclusive education?
7. The curriculum for inclusive education should be based on what parameters?

1.5 SUMMARY

- Aurobindo defines education as ‘helping the growing soul to draw out that is in itself.’
- Gandhiji speaks of education as, ‘By education, I mean an all-round drawing out of the best in the child and man—body, mind and spirit.’
- According to Vivekananda, ‘Education is the manifestation of divine perfection already existing in man—Education means the exposition of man’s complete individuality.’
- Pestalozzi defines education as ‘the natural, harmonious and progressive development of man’s innate powers.’ Man is endowed with certain inborn powers

and capacities and the task of education is to bring about the development of these. Due regard should be paid in the process of education to the child's nature and needs.

- Education takes place when new ideas combine with the old ones. Something new is constructed by the synthesis of the two and this process goes on constantly through life. Education is growth and growth never stops.
- Education is both retrospective and prospective. It is both conservative and progressive. Education transmits the culture of one generation to another. The rising generation has not only to be conveyed the activities and experiences of the past generation and asked to carry on those activities but it also has to be asked to make necessary changes in these activities and experiences to meet the new situations which it will encounter.
- Education curbs the animal instincts in man and shows him the way to realize his latent powers. It thus makes the potential actual. It makes explicit what is implicit in us. It is, therefore, development from within and not an accretion from without. It modifies the behaviour of the educand.
- By education we mean the natural, harmonious and progressive development of man's innate powers by drawing out the best in his body, mind and spirit so as to produce an individual who is culturally refined, emotionally stable, ethically sound, mentally alert, morally upright, physically strong, socially efficient, spiritually enlightened, vocationally self-sufficient and internationally liberal. This should be the end product of education.
- Formal education is imparted in an educational institution—a school or college. It is consciously and deliberately planned to bring about specific changes in the educand or the learner.
- Informal education takes into its orbit all indirect influences of the home and the society. The press, the libraries, the films and other such agencies are included as agencies of informal education. Their influence is subtle and imperceptible but at the same time very important and significant.
- Non-formal education is an arrangement wherein flexibility is the key word. The system is an open one with regards to various aspects of education, i.e., admissions, curriculum, place of instruction, mode of instruction and the time and duration of instruction. Open university, open learning, correspondence courses and distant education are the various examples of such a system.
- Inclusion in education was once described as an approach wherein students with special educational needs spend most or all their time with non-disabled students. For a school to be inclusive, the attitudes of everyone in the school, including administrators, teachers and other students should be positive towards students with disabilities.
- Inclusive education means that all children, regardless of their ability level, are included in a mainstream classroom, or in the most appropriate or least restrictive environment (LRE), that students of all ability levels are taught as equals, and that teachers must adjust their curriculum and teaching methodologies so that all students benefit.

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1.6 KEY TERMS

- **Non-formal education:** This is any organized educational activity that takes place outside the formal educational system.
- **Informal education:** This type of education takes into its orbit all indirect influences of the home and the society.
- **Education:** It helps in the natural, harmonious and progressive development of man's innate powers by drawing out the best in his body, mind and spirit.
- **Inclusive education:** It means that all children, regardless of their ability level, are included in a mainstream classroom, or in the most appropriate or least restrictive environment.

1.7 ANSWERS TO 'CHECK YOUR PROGRESS'

1. In the words of Dewey, 'Education is the development of all those capacities in the individual which will enable him to control his environment and fulfil his responsibilities.'
2. The three characteristics of education, among others, are:
 - It is purposive.
 - It is deliberate.
 - It is lifelong.
3. Formal, informal and non-formal are the three types of education.
4. Two characteristics of formal education, among others, are:
 - Planned education keeping in view some definite aim
 - Education imparted through well planned means or formal lessons
5. Informal education takes into its orbit all indirect influences of the home and the society. The press, the libraries, the films and other such agencies are included as agencies of informal education. Their influence is subtle and imperceptible but at the same time very important and significant.
6. Inclusive education 'is a process of strengthening the capacity of the education system to reach out to all learners'. It involves restructuring the culture, policies and practices in schools so that they can respond to the diversity of students in their locality.
7. The curriculum for inclusive education should be based on the following parameters:
 - Child centred
 - Flexible
 - Participatory
 - Partnership with parents

1.8 QUESTIONS AND EXERCISES

Short-Answer Questions

1. Write any two definitions of education.
2. How can you say that education is a process of self-realization?
3. What are the different agencies of education?
4. Differentiate between formal and informal education.

Long-Answer Questions

1. Discuss the chief characteristics of the nature of education.
2. What are the various ways in which agencies of education have been classified? Discuss.
3. Discuss the benefits of inclusive education. What should the curriculum of inclusive education be based on?

1.9 FURTHER READING

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Chauhan, S. S. 2007. *Advanced Educational Psychology*, seventh edition. New Delhi: Vikas Publishing House.

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UNIT 2 AIMS OF EDUCATION

Structure

- 2.0 Introduction
- 2.1 Unit Objectives
- 2.2 Individual and Social Aims
 - 2.2.1 Individual Aims of Education
 - 2.2.2 Social Aims of Education
 - 2.2.3 Definitions Stressing Individual and Social Objectives of Education
- 2.3 Democratic Aims
- 2.4 Vocational Aims
- 2.5 Moral and Cultural Aims
- 2.6 Summary
- 2.7 Key Terms
- 2.8 Answers to 'Check Your Progress'
- 2.9 Questions and Exercises
- 2.10 Further Reading

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2.0 INTRODUCTION

The importance of aims and objectives of education is recognized by all educational, professional, political, non-political and religious associations. It is believed that education without clear aims is like a rudderless ship. For example, it is important for all countries to have a constitution or set of principles and traditions to help in good governance. Similarly, there should be properly defined and declared principles, aims and objectives of education on which policies and programmes of education could be formulated to achieve the set goals. In this unit, you will learn about some of the important aims of education.

2.1 UNIT OBJECTIVES

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

- Discuss the importance of individual and democratic aims of education
- Explain the social and cultural aims of education
- State why vocational aim of education is important

2.2 INDIVIDUAL AND SOCIAL AIMS

The quest for aims in education has been made since times immemorial. History bears out the truth that the quest acquired momentum with the birth of a great philosopher, or that of an educator or a great thinker. Similarly, the trial of a new educational experiment gave momentum to this quest. The quest for aims has also received a spurt with the sudden emergence of a political or social revolution or with the onslaught of religious upheaval. Emphasis on the nature of aims of education reflects the needs of the times.

Clark has expressed, 'No writer on education, however much he may strive after universality of thought, can wholly shape himself free from the influence of time and place.'

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Education Related to Time and Space

Worthy aims are related to situations of life. Any organized system of education must meet the real situations of a community. It must be in accordance with the physical and social needs of the community. The intrinsic needs and activities of the child are closely related to the needs of the community. A child cannot be educated in a vacuum. Children are members of the community in which they live and education must help them to become useful members of the society. Of course, in the process of making a child useful member of the society, he or she should not be overburdened with the 'do's' and 'dont's'.

Since physical, social and economic needs differ from place to place, from time to time and from country to country, the educational system, its curriculum, syllabi, methods and techniques must also be more or less different in different countries at different places. Changes in the ideals and values accepted by a society will call for corresponding changes in the system of education. Nothing is held as true and valuable for all times.

In ancient times men needed training in the use of bows and arrows for their safety. Their needs were simple and few. The processes of production, consumption, distribution and exchange were quite simple. Thus, the educative needs were also simple and could be met by a process of education which was also very simple.

2.2.1 Individual Aims of Education

Educational aims are correlative to the ideals of life. Educational aims in any country have varied with its political, social and economic conditions. The educational system of Greece and Rome raised an issue that is still very important in education today. Should education train good individuals or good citizens? Are the social needs of education more important than the needs of the individual? An individual is born with certain potentialities and natural endowments. It is the task of the educator to develop students into distinct individuals. But personality development does not take place in a vacuum. Thus, we have to decide whether the individual or the society should occupy the first place in education.

Educators who Emphasise Individual Aims of Education

- To enable men to release, to mature, to discipline the human mind and spirit,..... this most influential of all the varieties of energy has always been the task of education. (Johan H. Fischer¹)
- Schools exist to help children succeed. (Gordon Closkey²)
- Therefore, we would ask education to give us men with taste, respect for intelligence, and independence of judgement that will give them confidence to approach the public for what it is a group of distinct individuals, not a lump of reflexes waiting to be conditioned. (Monroe E. Spaght³)
- The object of education assumed here is development of the individual. (American Association of School Administrators⁴)
- In *Rigveda*, education has been defined as something, which makes a man self-reliant and selfless.
- According to Sir Percy Nunn, 'Nothing good enters into the human world except in and through the free activities of individual men and women, and that educational practice must be shaped to accord with that truth.'

- Mahatma Gandhi, the father of Basic Education, considers education as a means to develop man. He said ‘By education I mean an all-round drawing out of the best in child and man—body, mind and spirit.’
- The University Education Commission (1948) speaks about education in these words: ‘Education according to Indian tradition is initiation into the life of spirit, a training of human soul in the pursuit of truth and the practice of virtue.’
- Aristotle thinks that ‘education is the creation of a sound mind in a sound body.’
- In the words of Kant, ‘Education is the development in the individual of all the perfection of which he is capable.’
- According to Pestalozzi, ‘Education is the natural, harmonious and progressive development of man’s innate powers.’
- Froebel regards education ‘as the process through which the child makes internal external.’

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Why Stress on Individual Aims

- **The biologist’s support to individual aims of education:** According to Prof. G. Thompson, ‘Education is for the individual: its function being to enable the individual to survive and live out its complete life. Education is given for the sake of the individual to save him from destruction. Community exists for the individual, not the individual for the community. Community being the means and individual being the end, education should not set means over the end. Individual and not society, therefore, should be the centre of all educational efforts and activities.’
- **The naturalists’ support to the individual aims of education:** The naturalists like Nunn and Rousseau are of the view that the central aim of education is the autonomous development of the individual. According to Rousseau, ‘Everything is good as it comes from the hands of Author of Nature, but everything degenerates in the hand of man. God makes all things good. Man meddles with them and they become evil.’ Therefore, education should be in accordance with the nature of the individual.
- **The psychologists’ support to individual aims of education:** The psychologists regard each individual as a unique one. According to them, no two children are identical. The function of education should be to develop the innate powers of the individual so that his maximum development may take place.
- **The spiritualists’ support to individual aims of education:** The spiritualists are of the view that every individual is a separate entity and is responsible for his own actions. Therefore, the main function of education should be to lead the individual to self-realization. Swami Vivekananda stated, ‘Man is potentially divine. The goal is to manifest this potentiality from within, by controlling nature—external and internal through education.’
- **The progressivists’ support to the individual aims of education:** The progressivists hold the view that the progress and advancement of the world is due to great individuals born in different periods of history. They thus believe that the education process should secure conditions for the complete development of individuality so that each individual may make his original contribution to human life.

NOTES**Criticism of Individual Aims of Education**

- According to Raymont, an individual is only a figment of imagination. An individual cannot be conceived in isolation from society.
- The critics of individual aims believe that the individual left to himself is an animal, selfish and undisciplined. The animal instinct of man, if given a free reign, is sure to lead him to the state of primitive barbarism where the law of jungle prevailed.
- Absolute freedom to the individual should not be given. The individual may begin to assert that 'I must have what I want'.
- The exaggerated claim of the individual may have an adverse effect on the politics and economy of a country. The policy of 'laissez faire' is not conducive to national interests in the modern times.

2.2.2 Social Aims of Education

The individual is regarded as endowed with a social nature; he is social by instinct. An individual seems always to be caught up in an intricate web of social relations. Without them the newborn baby would almost perish. The social process and the educational process are essentially one and the same.

Curriculum is the social stuff out of which the individual realizes itself.

Narrow Interpretation of Social Aims of Education

The protagonists of this view think that state is an 'idealised metaphysical entity over and above the individual citizen, superior in every way'. Hence the individual exists for the society. It is, therefore, the State that should decide the aim, mode and type of education or training which an individual should receive for its welfare. The Spartan system of education in ancient times and the Nazi system of the recent past reflect this tendency. Undoubtedly such notions played a major role in world conflicts which led to the two World Wars in 1914 and 1939.

Broader Interpretation of the Social Aims of Education

The social aims of education finds expression in such concepts as 'education for social service', 'education for citizenship', 'education for social efficiency'.

Social aims of education have been stressed upon by the following:

- The primary purpose of the public schools is development of effective citizens—citizens who uphold American ideals and who act in accordance with the social and moral standards that characterise democracy.⁵
- The basic purpose of school is to develop in all people the skill, understanding, beliefs, and commitments necessary for government of and by the people.⁶
- The large function of education is to realise the ideals of manhood and the kinds of relationship between man that it cherishes.⁷
- The distinctive function of education must inevitably involve the giving of direction to the social reconstruction that we so desperately need if we are going to solve our social problems and realise our ideals.⁸
- Education means the culture which every generation purposely gives to its successors in order to qualify, to keep and to improve the level attained (Brown, F.J.).

- The teacher's aim is not to educate his pupils in the abstract, but for life in any existing society (Bruebacker, J. S.).
- Education is the process of reconstruction or reconstitution of experience, giving it a more socialised value through the medium of increased social efficiency (Dewey).
- Education cannot be considered in isolation or planned in a vacuum. It has to be used as a powerful instrument of social, economic and political change and will, therefore, have to be related to the long-term national aspirations, the programmes of national development in which the country is engaged and the difficult short-term problem it is called upon to face (Education Commission, 1964-66).
- Education is an attempt on the part of the adult members of the human society to shape the development of the coming generation in accordance with its own ideals of life (James Welton).
- An adequate educational programme will thus be concerned to help each individual child grow up from his state of initial dependence into full participation in the richest available group life including in a democratic country a full share in the active management of group affairs. Such an adequate programme will besides go on further to an active effort to improve the group culture (William Kilpatrick).
- True education involves three things: a sincere appreciation of the social and cultural achievements of one's country, a readiness to recognise its weaknesses frankly and to wish for their eradication and an earnest resolve to serve it to the best of one's ability, harmonising and subordinating individual interest to broader national interests. The school must address itself to building up this rich, three-fold concept of patriotism.

Why Social Aims of Education?

- The supporters of these aims believe that an individual cannot live and develop in isolation from society. Raymont says that the isolated individual is 'a figment of the imagination.' The individual being a social animal, will develop through social contacts.
- According to John Dewey, social aims are stressed as education should make each individual socially efficient and this social efficiency must be achieved by the positive use of individual power and capacities in social occupations. A socially efficient individual is not a drag or parasite on society or any individual. A socially efficient individual is able to earn his livelihood. He also conforms to moral and social standards of conduct.
- Gandhiji formulated the basic scheme with the objective of making people realize that education was not merely for the benefit of the individual but for the needs of a predominantly rural and agrarian population.

Limitations of Social Aims of Education

- Social aims of education envisage the individual as a non-entity and leave little scope for his personality and unique characteristics to flourish.
- Aggression and violence against neighbouring countries have resulted in educational aims of this variety. Militant nationalism 'my country, right or wrong', are attitudes which may develop in tender minds.

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- In recent years there has been a tendency in western countries among the young people to rebel against the cult of 'social efficiency'. Many students prefer the development and growth of individuality and want to give up the struggle for social efficiency.

2.2.3 Definitions Stressing Individual and Social Objectives of Education

- Education is that which increases our ability to enjoy things more, to live more richly, more creatively, and in greater harmony with ourselves, our environment and our fellowmen.⁹
- The main objectives of general education should be two-fold: first to help the student develop those qualities and abilities that will serve him and the community well, no matter what his calling or status in life, and second to foster in him those interests or abilities that enable him to continue to grow—to learn by himself and in whatever joint activity he may be engaged.¹⁰
- The goals are to enable each child to play a constructive, respected role in society and to lead to life which to him will be satisfying.¹¹

Social and Individual Purposes of Education not Incompatible

'Social purpose' of education and 'individual purpose' of education are not incompatible terms. The Education Commission 1964-66 has explained the position as: 'One of the important principles to be emphasized in the socialistic pattern of society which the nation desires to create is that individual fulfilment will come, not through selfish and narrow loyalties but through wider loyalties of national development in all its parameters.'

According to Ross, 'Individuality is of no value and personality is a meaningless term apart from the social environment in which they are developed and made manifest. Self-realization can be achieved only through social service and social ideas of real value can come into being only through free individuals who have developed valuable individuality. The circle cannot be broken.'

Both the individual and the society should be regarded as realities, neither of the two being absolutely independent of the other. Instead of being regarded as isolated entities, the individual and the society should be considered as functionally related to each other, the individual acting on the society, and the society reacting on the individual. The individual is the product of society and the society in its own turn finds its advancement in the development of its individual members. In the words of John Adam, 'Individuality requires a social medium to grow. Without social contacts we are not human.'

2.3 DEMOCRATIC AIMS

The degree of state control over education has varied from state to state at different times. Prof. John S. Brubacher outlines the position as: 'At one time all education was under private supervision, lately, more and more of it has come under the government. In some places, the government merely provides the school building and teachers. In others it goes further and offers free textbooks and supplies. In still others, it furnishes such services as medical care, transportation to and from school and mid-day lunch. Probably no one today would like to see the government abandon any of these services.'

Education aims in any country have varied with its social, economic and geographical conditions. In recent past, political system has been the dominating factor in determining the aims and ideals of education. The two systems which are considered here in relation to aims of education will be democratic and totalitarian.

Common Aims of Education in Totalitarian and Democratic States

- Both use education systems as a direct means of economic development.
- Both use educational systems as a conscious means of transforming their society.
- Both make all out attempts to provide schooling for all. An attack on mass illiteracy is a must.
- Both lay great stress on vocational skills to bring about economic efficiency.

State Control of Education in a Totalitarian State

The child in a totalitarian state is educated not only exclusively by the state but ultimately exclusively for the state as well. Thus, the state comes to assume ethical as well as political sovereignty in the education of its wards. The state organizes and maintains schools of its own. The teachers in a totalitarian state must propagate and indoctrinate the decisions made by higher ups. As in the army, the schools of a totalitarian state will emphasize drill and obedience at the expense of initiative and criticism.

The merits and demerits of such an educational philosophy are the same as those of the political theory after which it is patterned. Thus, the aims and ideals of education depend upon the philosophy that prevails in a society. In the mid-twentieth century, Japanese and Nazi regimes stressed that education should produce patriotic citizens who would fight to expand the territories of their nation's superiority. The cultural revolution in China in the 1960s was directed towards the ideals set by the totalitarian state.

In a totalitarian state, students are not encouraged to look critically at the problems and evils existing in society. They are encouraged to be content with status quo. Passive acceptance of the country's political economic and other policies is sought to be implanted in the minds of the students. Militant nationalism, 'My country, right or wrong' are attitudes which may develop in tender minds. Aggression and violence against neighbouring countries have resulted in educational aims of this type.

Aims of education in a totalitarian state may be enumerated as under:

- Each individual must be trained to subordinate his interests to the interests of the state.
- Every child must follow a rigorous code of discipline.
- Thinking along the lines approved by the authorities is stressed. Very little independent thinking is allowed.
- Physical education and military training are given great importance.
- The student is made to realise the value and importance of obedience and conformity.

Education in a Democracy

Since every individual counts in a democracy, it enjoins that each person be always treated as an end. A man is to be educated as man because of his humane nature—no matter whether he is high born or low, and no matter what the economic condition of his

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Check Your Progress

1. How has the Rigveda defined education?
2. What according to Aristotle is education?

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parents is. Nothing less than universal education will suffice. Education is conditioned by deep regard for civic responsibilities; emphasis is on hard work, dignity of labour, initiative, enterprise and reliance. Since all men in a democracy are free, education must be free, that is there must be no economic barriers to its acquisition. Since in a democracy all men are politically free, all should have a liberal education.

Following are the aims of education in a democratic set up:

- It should develop a wide range of wholesome interests in each pupil by providing for learning through cooperative work.
- It should develop social outlook.
- It should develop ability of constructive and independent thinking.
- It should develop the capacity of the pupil to sift truth from falsehood, fact from propaganda and to reject the dangerous appeal of fanaticism and prejudice.
- It should provide for training in dignity of labour.
- It should provide equal opportunities for all.
- It should develop a passion for social justice based upon sensitivity to social evils and exploitation of the weak.
- It should develop love and respect for others. It should develop human relations.
- It should cater to the individual differences among children and teach them accordingly. No attempt should be made towards uniformity.
- It should encourage originality and inventiveness.
- Vocational choices should be broad-based.

2.4 VOCATIONAL AIMS

Moral or character formation aim of education is also one-sided. An individual must be prepared to earn his livelihood otherwise he will not be a happy man. Of course, values of life must not be sacrificed for 'bread and butter'.

Gandhiji has also supported the vocational aim, 'True education ought to be for them (boys and girls) a kind of insurance against unemployment.' The vocational aim is also called the 'bread and butter aim'. It can train individuals to become socially efficient. They will, therefore, neither be drags nor parasites on the society. They will contribute to increase production and national wealth. The advocates of the vocational aim argue that all the knowledge a pupil gains in the school, all the culture the pupil acquires in the school will be of no use, if he cannot make both ends meet.

Synthesis of Character Formation and Vocational Aim of Education

Vocational aim in education has its own importance but man does not live by bread alone. Education must take into consideration the entire personality of the pupil and not one segment of it. Man has to develop himself aesthetically, intellectually, morally, physically, socially and vocationally. The University Education Commission (1948–49) has very rightly observed: 'If we wish to bring about a savage upheaval in our society, a *Rakshas Raj*, all that we need to do is to give vocational and technical education to starve the spirit. We will have number of scientists without conscience, technicians without taste, who find a void within themselves, a moral vacuum and a desperate need

Check Your Progress

3. State any two common aims of education in totalitarian and democratic states.
4. State any three aims of education in a democracy.

to substitute something, anything for their lost endeavour and purpose.’ This underlines that vocational aspect should not be at the cost of character aspect. This statement does not reject the vocational aim. It emphasises that character aim should not be ignored.

Jawaharlal Nehru has stated: ‘Education has mainly two aspects, the cultural aspect which makes a person grow, and the productive aspect which makes a person do things. Both are essential. Everybody should be a producer as well as a good citizen and not a sponge on another person even though the other person may be one’s own husband or wife.’ Gandhiji, it is true, stressed the vocational aspect but at the same time he was very emphatic. He was convinced that without character, vocational efficiency had no meaning. All the same, he emphasized the vocational aspect in the system of Basic Education.

2.5 MORAL AND CULTURAL AIMS

Money is not needful; power is not needful; cleverness is not needful; even health is not needful but character alone is the most needful and education must develop it. Gandhiji has observed: ‘All our learning or recitation of the Vedas, correct knowledge of Sanskrit, Latin, Greek and what not will avail us nothing if they do not enable us to cultivate absolute purity of heart. The end of all knowledge must be building up of character.’ Raymont states: ‘The teacher’s ultimate concern is to cultivate, not wealth of muscle, nor fulness of knowledge, nor refinement of feeling, but strength and purity of character.’ According to Vivekananda, ‘The end of all education, all training, should be man making.’ John Dewey has said: ‘All education forms character—mental and moral’. The Secondary Education Commission has observed, ‘Education is the training of character to fit the students to participate creatively as citizens.’

Character has two facets: the one which is personal, and the other which manifests itself in our relationship with society. Both these aspects should be pure and unsullied. Right from the ancient seers down to the great personalities of our modern time, all those whom we consider as standard bearers of our philosophy and culture have been pure—their thought, word and deed all in tune with the highest truths.

Character is the product of daily, hourly actions and words and thoughts; daily forgiveness, unselfishness, kindness, sympathies, charities, sacrifices for the good of others, struggles against temptations. What is character without elementary personal purity?

Character is the product of innate endowment, influence of environment and constant introspection. Good acts and habits are the basis of good character and therefore character formation is a continuous process from life to death. Gandhiji has observed, ‘Character-building... must come within yourself.’

2.6 SUMMARY

- The quest for aims has received a spurt with the sudden emergence of a political or social revolution or with the onslaught of religious upheaval. Emphasis on the nature of aims of education reflects the needs of the times.
- Since physical, social and economic needs differ from place to place, from time to time and from country to country, the educational system, its curriculum, syllabi,

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Check Your Progress

5. Why did Gandhiji support vocational education?
6. Why is moral education important?

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methods and techniques must also be more or less different in different countries at different places. Changes in the ideals and values accepted by a society will call for corresponding changes in the system of education. Nothing is held as true and valuable for all times.

- Educational aims in any country have varied with its political, social and economic conditions.
- According to Prof. G. Thompson, 'Education is for the individual: its function being to enable the individual to survive and live out its complete life. Education is given for the sake of the individual to save him from destruction. Community exists for the individual, not the individual for the community. Community being the means and individual being the end, education should not set means over the end. Individual and not society, therefore, should be the centre of all educational efforts and activities.'
- Education is that which increases our ability to enjoy things more, to live more richly, more creatively, and in greater harmony with ourselves, our environment and our fellowmen.
- Education aims in any country have varied with its social, economic and geographical conditions. In recent past, political system has been the dominating factor in determining the aims and ideals of education. The two systems which are considered here in relation to aims of education will be democratic and totalitarian.
- The child in a totalitarian state is educated not only exclusively by the state but ultimately exclusively for the state as well. Thus the state comes to assume ethical as well as political sovereignty in the education of its wards. The state organizes and maintains schools of its own. The teachers in a totalitarian state must propagate and indoctrinate the decisions made by higher ups. As in the army, the schools of a totalitarian state will emphasize drill and obedience at the expense of initiative and criticism.
- Education is conditioned by deep regard for civic responsibilities; emphasis is on hard work, dignity of labour, initiative, enterprise and reliance. Since all men in a democracy are free, education must be free, that is there must be no economic barriers to its acquisition. Since in a democracy all men are politically free, all should have a liberal education.
- Moral or character formation aim of education is one-sided. An individual must be prepared to earn his livelihood, otherwise he will not be a happy man. Of course, values of life must not be sacrificed for 'bread and butter'.
- Vocational aim in education has its own importance but man does not live by bread alone. Education must take into consideration the entire personality of the pupil and not one segment of it. Man has to develop himself aesthetically, intellectually, morally, physically, socially and vocationally.
- According to Gandhiji, 'All our learning or recitation of the Vedas, correct knowledge of Sanskrit, Latin, Greek and what not will avail us nothing if they do not enable us to cultivate absolute purity of heart. The end of all knowledge must be building up of character.'

2.7 KEY TERMS

- **Education:** It is the process of facilitating learning. Knowledge, skills, values, beliefs, and habits of a group of people are transferred to other people, through storytelling, discussion, teaching, training, or research.
- **Vocational education:** Schools that prepares students for a specific trade. It directly develops expertise in techniques related to technology, skill and scientific technique to span all aspects of the trade.

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2.8 ANSWERS TO ‘CHECK YOUR PROGRESS’

1. In the *Rigveda*, education has been defined as something, which makes a man self-reliant and selfless.
2. According to Aristotle: ‘Education is the creation of a sound mind in a sound body.’
3. The common aims of education in the totalitarian and democratic states are:
 - Both use education systems as a direct means of economic development.
 - Both use educational systems as a conscious means of transforming their society.
4. Three aims of education in a democracy are:
 - It should develop a wide range of wholesome interests in each pupil by providing for learning through cooperative work.
 - It should develop social outlook.
 - It should develop ability of constructive and independent thinking.
5. According to Gandhiji, true education ought to be for like an insurance against unemployment. He believed that vocational skills can empower youth.
6. Moral education is important as development of character is required for all individuals. This helps an individual to become an asset to the society and the country at large.

2.9 QUESTIONS AND EXERCISES

Short-Answer Questions

1. What are Rousseau’s views on education?
2. What are individual aims of education?
3. What are the limitations of individual aims of education?

Long-Answer Questions

1. What are the limitations of the social aims of education? How are social and individual purposes of education compatible?
2. Discuss why stress on individual aims of education is important.
3. Why are vocational aims in education important?

2.10 FURTHER READING

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UNIT 3 EDUCATIONAL STRUCTURE

Structure

- 3.0 Introduction
- 3.1 Unit Objectives
- 3.2 Educational Ladder
- 3.3 Evolution of Educational Structure in India
 - 3.3.1 Secondary Education Commission
 - 3.3.2 Kothari Commission and Evolution of 10+2+3 Education System
 - 3.3.3 National Policy on Education (NPE 1986)
- 3.4 Summary
- 3.5 Key Terms
- 3.6 Answers to 'Check Your Progress'
- 3.7 Questions and Exercises
- 3.8 Further Reading

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3.0 INTRODUCTION

After Independence, the education system in India underwent major alterations. There was an increase in demand for every kind of higher education—literary and scientific, technical and professional, as universities were given the task to empower the country by educating its people to attain freedom from want, disease and ignorance. To raise the living standards, a radical change of spirit was essentially required. Keeping in view all of the above, the Education Commission was set up.

The first Education Commission of Independent India (1948) was known as University Education Commission. Education Commission of 1964–66 is popularly known as Kothari Commission after the name of its Chairman, D. S. Kothari. It was the third Commission on Education since Independence. It was the only Commission that went into all aspects of education at all stages and made detailed recommendations on the reconstruction of education in India. The composition of the Commission was of international level. As education remains the common quest of mankind, it was found profitable to draw upon the experience and thinking of educationists and scientists from other countries, and to take advantage of the latest developments in the educationally advanced countries.

As such, the Commission included seven Indian members and five others; one each from Japan, France, the UK, the USA and the USSR as well as twenty consultants from different countries of the world.

In this unit, you will study the educational structure of India and the recommendations of various commissions to form the educational structure of India.

3.1 UNIT OBJECTIVES

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

- Explain the educational ladder of India
- Discuss the recommendations made by the Secondary Education Commission

- Discuss the report of the Kothari Commission
- State the structure of the new pattern of education

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3.2 EDUCATIONAL LADDER

Several articles of the Indian Constitution lay down provisions for free and compulsory education of Indian children from six to fourteen years as a fundamental right. In the Republic of India, education is provided by both the private sector and the public sector. The control and the funding come from three levels: local, state and centre.

Tremendous progress has been made in India as far as attendance rate in the area of primary education is concerned. By 2011, India had managed to raise its number of literates to three-quarters of the total population in the age group of 7–10 year olds. The improved and better developed education system that currently exists in India is said to be not only a huge contributor but the main one to the economic development of India. A lot of the progress made in education in India, and more specifically in the area of scientific research and in higher education, is the outcome of the many public institutions.

In both secondary level and primary level, there is a large system of private schools in India. The private school system complements the system of schools that are run by the government. There are as many as 29 per cent of students in the age group of six and fourteen years who are in the private school system. There are also several private post-secondary technical schools in India. In 2008, India's private education market grossed revenue of US\$450 million, while the projected revenue earning capability of this system is as high as US\$40 billion.

According to the Annual Status of Education Report (ASER) 2012, as high as 96.5 per cent of all children in the age group of six to fourteen years from rural India had been enrolled in schools. Of all such surveys, this is the fourth one to have shown a figure of enrollment of rural children to be over 96 per cent. Another report from 2013 stated that there were 229 million students enrolled in different accredited urban and rural schools of India, from Class I to XII, representing an increase of 2.3 million students over 2002 total enrollment, and a 19 per cent rise in the enrollment of girls. Even though India is quantitatively slowly and steadily moving nearer to attaining universal education, the actual quality of the education that is imparted is under question, especially in the schools that are part of the school system under the administration of the government. One reason why the quality of education in the government run schools is so poor is that on any day nearly 25 per cent of the teachers are missing from duty. Across India, education assessment systems and tests have been put in place so that problems in schools can be identified and the education system can be improved.

The private school sector in India is extremely regulated in the sense that it is clearly defined what it is that they can teach, what is that form in which they are allowed to operate (educational institutions must be run as non-profit ventures if they are accredited), and each and every facet of their operation. So, the differentiation between private schools and the government one is one that is rather misleading.

In 1977, just before the government instituted the 10+2+3 system, India had four patterns of school leaving exams in operation in India: 10+2+3, 10+2+2+2, 11+3 and 11–12+1+3. A national system was required, one which brought uniformity into the school system, ensured mobility across states, comparability with the rest of the world,

and insisted on eight years of elementary school. The idea was born in the Education Commission of 1964–66, headed by former physics professor D. S. Kothari, who became the chairperson of the University Grants Commission (UGC), and was assisted by J. P. Naik, the scholar who set up the Indian Council of Social Science Research.

Though almost all states have introduced the +2 system, in some cases, it is administered by colleges, not school boards such as the CBSE (Central Board of Secondary Education). Vocational education after Class X is still a distant dream, though a subsequent committee headed by Ishwarbhai Patel recommended that 50 per cent of Class X students be sent to the vocational stream. There is still little clarity on the three-language formula. However, the one lasting legacy is that children receive general education till Class X, making science compulsory.

The Central Board for Education in India and the majority of the state boards follow a uniform pattern of education which is referred to as the '10+2+3' (ten plus two plus three) pattern of education. This pattern requires that the first twelve years of education should be completed in school, possibly with the last two in junior college. The following three years of education for the bachelor's degree are done in a college to complete graduation. The initial ten years of study in a school fall into three distinct groups: the first five years are primary education, next three years are middle and the last two years are high school. The Education Commission of 1964–66 had proposed such a pattern and it is being followed in Indian schools even today.

Given below is a little more detail of the education ladder of the Indian education system:

- **Pre-school:** At this stage, education has not been made compulsory. At the pre-school level, it is the Montessori system which is extremely popular.
- **Private playschools:** Such schools are geared towards catering to children starting from age eighteen months and right up to three-year olds.
- **Kindergarten:** This stage is split into two— lower kindergarten (for 3–4 year olds) and upper kindergarten (for 4–5 year olds)
- **Primary school:** This step of the ladder comprises classes from 1st to Vth and is for children aged 6 years to 10 years.
- **Middle school:** This stage comprises classes from VIth to VIIIth and is for children aged 11 years to 14 years.
- **Secondary school:** This stage comprises classes from IXth and Xth and is for children aged 14 years to 16 years.
- **Higher secondary or pre-university:** This stage comprises the XI th and XII th standard and is for children in the age group of 16 to 17 years. It is at this stage that students select their academic focus area or choose the academic stream that they would like to pursue.
- **Undergraduate:** This is a bachelor's degree. If it is a BA (Bachelor of Arts), it will be a three-year course. In case if bachelor's is being done in some specialized courses like engineering or medicine, then the duration will be longer and will vary.
- **Postgraduate:** This is a master's course, the duration of which is two years.

The age of admission to class I should not be less than 6+. The first public external examination should come at the end of the first 10 years of schooling.

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Secondary schools should be of two types— higher schools providing a 10 years' course and higher secondary schools providing a course of 11 or 12 years. A new higher secondary course consisting of classes XI and XII should be introduced. The pre-university courses should be transferred from universities and added to the secondary schools. The Commission has suggested the reorganization of the university stage. At this stage, the three-year degree has been favoured by the Commission.

In India, the National Council of Educational Research and Training (NCERT) functions as the apex body as far as all matters related to curriculum for school education in India are concerned. NCERT provides technical assistance and support to many schools, both within India and overseas, with respect to the various aspects for the enforcement of different education policies. Following are some of the other curriculum bodies that are engaged with governing school education system:

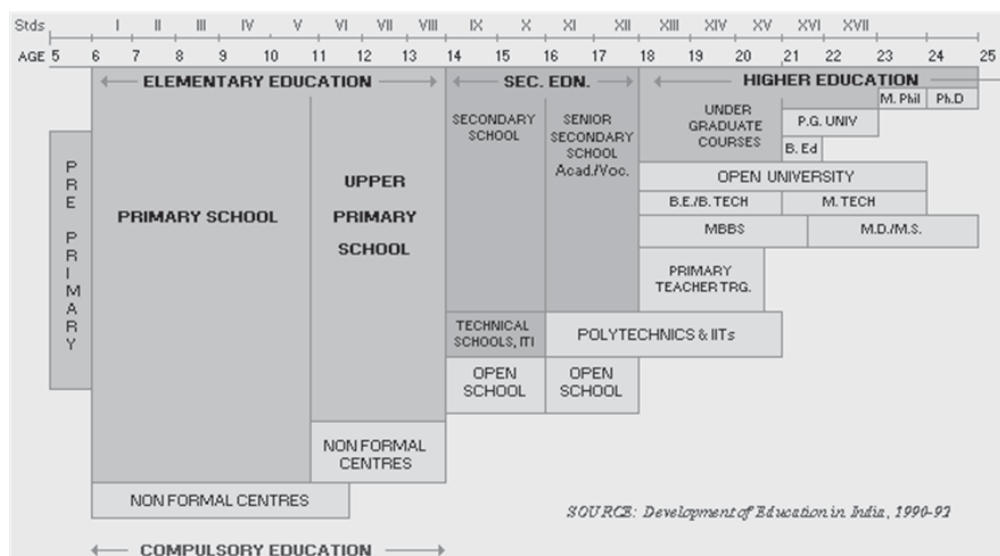
- **State Government Boards:** Majority of the states in India have their own education board which would be the State Board of Secondary Education. There are also some states, such as Andhra Pradesh, which have two or more education boards. The union territories of India do not have separate boards for education. Union territories, such as Daman and Diu, Lakshadweep, Chandigarh, Puducherry, and Dadra and Nagar Haveli, avail education board services from a larger state.
- **Central Board of Secondary Education (CBSE):** It is the one to conduct the certification examinations for class X and for class XII.
- **The Council of Indian School Certificate Examination (CISCE):** CISCE conducts three examinations, namely the Indian Certificate of Secondary Education (ICSE - Class/Grade 10); the Indian School Certificate (ISC - Class/Grade 12) and the Certificate in Vocational Education (CVE - Class/Grade 12).
- **The National Institute of Open Schooling (NIOS):** It has the responsibility of conducting two examinations—Secondary Examination and Senior Secondary Examination (All India). It also conducts examination for some specific Vocational Education courses.
- **International schools:** A category of schools that have affiliation with the International Baccalaureate Programme and/or the Cambridge International Examinations.
- **Islamic Madrasa schools:** Boards of these schools are controlled by local state governments, or are autonomous, or are affiliated with Darul Uloom Deoband.
- **Autonomous schools:** Some examples are Woodstock School, The Sri Aurobindo International Centre of Education Puducherry, Patha Bhavan and Ananda Marga Gurukula.
- **International schools:** These schools provide examinations for the Xth and XIIth classes for International Baccalaureate, or Cambridge Senior Secondary Examination.

Both National Council for Teacher Education (NCTE) and National University of Educational Planning and Administration (NUEPA) hold the responsibility for the management of the education system and teacher accreditation across India.

Let us look at, in a little more detail, the types of schools that are present in India.

- **Public/government schools:** Majority of the schools in India are run and funded by the government. Nevertheless, there are serious challenges being faced by the public education system in India, which includes scarce facilities, staff shortage (administrative and educational), low funding and inadequacy of infrastructure.
- **Private schools:** As has been pointed out above, several of the government schools are incapable of providing the students with adequate education. So, private schools have sprung up which provide a good environment for learning and are the choice of most parents.
- **International schools:** All major cities of India have international schools where international curriculum is taught.
- **National open schools:** This category of schools cater to education right till the higher secondary level. It is meant for such persons whose schooling was interrupted and they were not able to finish their education through the formal education system.
- **Special-needs schools:** Such schools focus on children with disabilities and making available non-formal education as well as vocational training for them.

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3.3 EVOLUTION OF EDUCATIONAL STRUCTURE IN INDIA

Although the number of secondary schools and its enrollment began to significantly increase even before India's Independence, the quality of education imparted was not able to meet the changing socio-economic needs of the country. Thus, the need for reform was strongly felt. The University Education Commission also mentioned that

Check Your Progress

1. What are the different levels of Indian education system?
2. What are the different types of schools present in India?

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India's secondary education remained the weakest link in its educational machinery and needed urgent reform. The Central Advisory Board of Education recommended the appointment of a Commission to examine the prevailing system of secondary education in the country and to suggest measures for its reorganization and improvement.

3.3.1 Secondary Education Commission

Government of India set up Secondary Education Commission via a Resolution dated 23 September 1952, under the Chairmanship of A. Lakshmanaswami Mudaliar, the Vice-Chancellor of the Madras University. Thus, this Commission is also referred to as 'Mudaliar Commission'. The Commission was inaugurated on 6 October 1952. It submitted its Report in June 1953.

The terms of reference of this Commission were as follows:

- (i) To communicate, in detail, the position of Secondary Education in India
- (ii) To recommend ways to reorganize and improve this position, with special reference to:
 - (a) Aims, organization and content of secondary education
 - (b) Relationship to primary, basic and higher education
 - (c) Interrelation of secondary schools of different types
 - (d) Other allied problems

The Report was presented on 29 August 1953 by the Commission. The Report was lengthy with 311 pages and discussed the defects of the then existing system:

- The education given in Indian schools was isolated from real life.
- It failed to train the whole personality of the student.
- Too much importance was given to English.
- The method of teaching generally practised failed to develop in the students their independence of thought and initiative in action.
- Increase in size of the classes considerably reduced the personal contact between the teachers and the students.
- Dead weight of the examination had reduced the teacher's initiative taking ability, and made the curriculum extremely boring and dull, stressing on all the wrong or unimportant aspects of education.

Objectives of Secondary Education Commission

The Commission had the following expectations from Secondary Education:

(i) Development of democratic citizenship

To achieve the aim of secondary education, i.e., to develop ideal democratic citizens in the country, the citizens of India need to be trained to uphold and practice the values of the democratic social order. This can be achieved only by imbibing the qualities of discipline, tolerance, patriotism, cooperation, and through equal opportunities for thought, speech and writing. The essence of the world citizenship should be developed in the students. Thus, all these qualities should be developed in the students to make them good citizens of a democratic India.

(ii) Improvement of vocational efficiency

To increase the productive efficiency of its people and its national income, India needs to develop its vocational efficiency. For this, the Secondary Education Commission recommended fostering the dignity of manual labour and the promotion of technical skills for the advancement of industry and technology through secondary education. Thus, emphasis was placed on agricultural, technical, commercial and other practical courses.

(iii) Education for leadership

Secondary education is a terminal point for the majority of the students. Therefore, at the end of the school education, each student must be able to enter into various professions independently. A special function of the secondary school is to train persons who will be able to assume the responsibility of leadership—in social, political, industrial or cultural fields—in their own small groups of community or locality.

(iv) Development of personality

Secondary education trains the pupils to appreciate their cultural heritage and acquire constructive and valuable interest. They should also be trained to preserve and their cultural heritage. An all-round development of the personality of the student is an essential aim of secondary education.

(v) Reorganization of secondary education

Regarding the organizational pattern of secondary education, Secondary Education Commission recommended that secondary education should be a complete stage by itself. This stage of education is the most important for students in their preparation for life. To raise the standard of school education, the Commission proposed the following organizational pattern:

- The duration of secondary education should be 7 years. It should cover the age group from 11–17.
- Under the new organizational structure, secondary education should commence after 4 or 5 years of primary or junior basic education.
- The middle or senior basic or lower secondary stage should cover a period of 3 years.
- The higher secondary stage should cover 3 years.
- The Commission suggested the abolition of the present intermediate classes. The 12th class should be attached to the university and the 11th class should be added to the high school. Thus, it pleaded for 1-year pre-university and 3-year degree courses.
- The Commission recommended that technical schools should be started in large number and central technical institutes should also be established in the large cities.
- Multi-purpose schools should be established, which would provide terminal courses in technology, commerce, agriculture, fine arts and home sciences. The object of these institutions was to direct students into different walks of life at the end of the secondary course to reduce the pressure on university entrance.

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Curriculum in schools

The Secondary Education Commission pointed out the defects of the existing curriculum and also discussed the principle of curriculum construction in detail.

Defects of the curriculum

The Commission observed the following defects in the existing curriculum:

- (i) The curriculum was narrow.
- (ii) It was overcrowded and did not provide rich and significant contents.
- (iii) There was no adequate provision for practicals and activities that should be in any curriculum at the secondary stage of education.
- (iv) It was bookish and theoretical.
- (v) Curriculum was too dominated by the examination.
- (vi) It did not cater to the various needs and capacities of adolescents.
- (vii) The curriculum did not find room for technical and vocational subjects which are necessary for an all-round education.

The Secondary Education Commission stated the functions of the middle school curriculum. It is the stage for general introduction to the fields of knowledge that can be pursued. The Commission laid down the following different curriculae for these two stages in secondary education.

Curriculum for middle schools

The Commission recommended the inclusion of the following subjects:

- English
- Social Studies
- General Science
- Mathematics
- Art and Music
- Craft
- Physical Education

Curriculum for higher secondary schools

For this stage of education, the Commission suggested that there should be a diversified course.

- (a) Compulsory subjects or main subjects
- (b) Optional subjects

The compulsory subjects shall include:

- Mother tongue or regional language or a combined course of the mother tongue and a classical language.

- One other language to be chosen from among the following:
 - o Hindi for those whose mother tongue is not Hindi.
 - o Elementary English (for those who have not studied English in the middle stage).
 - o Advanced English (for those who have studied English at an earlier stage).
 - o A modern Indian language (other than Hindi).
 - o A modern foreign language (other than English).
 - o A classical language.
- Social studies: General course (for the first two years only).
- General science including Mathematics: General course (for the first two years only).
- One Craft to be chosen out of the list below:
 - o Spinning and weaving
 - o Wood work
 - o Metal work
 - o Gardening
 - o Tailoring
 - o Typography
 - o Workshop practice
 - o Sewing, needle work and embroidery
 - o Modelling

For optional subjects, three subjects from one of the following groups:

Group - 1 (Humanities):

(a) A classical language or a third language not already taken; (b) History; (c) Geography; (d) Elements of Economics and Civics; (e) Elements of Psychology and Logic; (f) Mathematics; (g) Music; (h) Domestic Science.

Group - 2 (Science):

(a) Physics; (b) Chemistry; (c) Biology; (d) Geography; (e) Mathematics; (f) Elements of Physiology and Hygiene; (not to be taken with Biology).

Group - 3 (Technical):

(a) Applied Mathematics and Geometrical Engineering; (b) Applied Science; (c) Elements of Mechanical Engineering; (d) Elements of Electrical Engineering.

Group - 4 (Commercial):

(a) Commercial Practice; (b) Book-keeping; (c) Commercial Geography or Elements of Economics and Civics; (d) Shorthand and Typewriting.

Group - 5 (Agriculture):

(a) General Agriculture; (b) Animal Husbandry; (c) Horticulture and Gardening; (d) Agricultural Chemistry and Botany.

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Group - 6 (Fine Arts):

(a) History of Art; (b) Drawing and Designing; (c) Painting; (d) Modelling; (e) Music; (f) Dancing.

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Group - 7 (Home Science):

(a) Home Economics; (b) Nutrition and Cookery; (c) Mother Craft and Child Care; (d) Household Management and Home Nursing.

Major Recommendations of Secondary Education Commission

It was a matter of priority to introduce a variety of courses in the existing and new High Schools. All states, should provide different vocations in schools in all regions according to the needs and the aptitude of students, and should ensure that rural areas include the subject of agricultural education in their curriculum. Such courses should include horticulture, animal husbandry and cottage industries (State Governments). The Commission recommended that within the next two years, all Government Secondary Schools should be converted into multi-purpose High Schools which would provide courses in some of the practical groups. The Semi-Government or Private, which should be at least 5 per cent of the schools, should facilitate the teaching of at least one practical group of subjects (in addition to the existing subjects). During the period of the Second Five-Year Plan, 10 per cent more of the remaining High Schools should be able to teach diversified practical courses. Since the High Schools numbered nearly 10,000 at the time, the proposal meant the introduction of diversified courses in about 500 schools in the first two years and in 1,000 schools in the subsequent five years. The State and Central Governments were to provide financial assistance to High Schools to support the introduction of these courses. The following alternative types of financial assistance by the Government of India were suggested by the Committee:

- Depending on the amount of funds available, the Government of India was responsible for non-recurring expenditure and the State Government was responsible for the recurring expenditure.
- The 50 per cent of the total non-recurring expenditure and 50 per cent of the expenditure on teachers' salaries in practical subjects was to be assumed by the Government of India and the rest by the State Governments. Thus, the Government of India would only contribute on improvements which were made as per the guidelines formulated by it. Let us discuss the recommendations in detail:
 - (i) **Need, Aim and Objectives of Secondary Education:** According to the Commission, the main objectives of education should be the development of democratic citizenship, improvement of vocational efficiency, development of personality and development of qualities for leadership.
 - (ii) **Duration of Secondary Education:** According to the Commission, the education should commence after four or five years of junior Basic or Primary Education and should include: (a) Middle or Senior Basic or Junior Secondary Stage of three years, and (b) Higher Secondary stage of four years.
 - (iii) **Multipurpose Schools:** Multipurpose schools should be opened with varied courses of interests and with diverse aims, aptitude and abilities. These schools aim to remove all distinctions between students preparing for different

courses of studies, breaking the sense of inferiority associated with vocational subjects and, thus, leading to a democratic basis of education. This also facilitates the transfer of students within the same school. After completing such courses, successfully the students should be given the opportunities for higher specialized courses in polytechnics.

- (iv) **Diversified Curriculum:** The pattern was suggested as already discussed.
- (v) **Guidance and Counselling:** A comprehensive programme was suggested for guidance and counselling.
- (vi) **Agriculture Schools:** Due attention should be given to subject of Agriculture in schools.
- (vii) **Technical Schools:** A large number of technical schools should be started in order to come up with a workforce for the nation. Specialists in technical subjects may be recruited as teachers after they receive an intensive three months training in teaching methods. As incentive for them to join as teachers, they should be paid their full salary during their training period. The syllabus should be drawn up by a group of experts.
- (viii) **Other Types of Schools:** Public schools, residential schools, co-educational schools, separate schools for girls and schools suitable for the handicapped should be established.
- (ix) **Textbooks and Libraries:** A Committee should be formed to look after the quality of books. A single book should not be prescribed as the textbook. Well-stocked school libraries are an essential tool for proper education and for the successful implementation of the new curricula, and progressive teaching methods recommended by the Commission. Thus, all schools should have a good library which is looked after by a well-trained librarian. The Government of India and State Governments should encourage well-equipped libraries by giving an initial grant of ₹ 50,000 as a starting fund to all schools for this purpose. This expenditure would be shared in the ratio of 1 : 2 and may be spread over five years. The total amount for this proposal amounted to ₹5crore.
- (x) **Methods of Teaching:** Desirable attitudes and values should be inculcated with the use of appropriate methods of teaching. Purposeful, concrete and realistic situations should be incorporated in the Activity Method and the Project Method in school teaching. In order to popularize progressive teaching methods and facilitate their introduction, 'Experimental' and 'Demonstration' schools should be established and given special encouragement where they exist, so that they may try out new methods freely without being fettered by too many departmental restrictions.
- (xi) **Discipline:** Personal contact between the teacher and the student should be developed in order to maintain discipline in the schools. Self-government in the form of house system and student councils should be introduced in all the schools.
- (xii) **Religious and Moral Teachings:** Religious instructions may be given to the students in the schools on the voluntary basis with the consent of the parties and management.

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- (xiii) **Health Education:** A School Medical Service should be built in schools to provide facilities for a thorough medical examination of all the pupils and follow-up treatments. The State should ensure that schools provide healthy meals and medical services for the well-being of the students. Students and teachers should be encouraged to grow their own food produce as much as possible.
- (xiv) **Extra-curricular Activities:** These should form an integral part of education. The State should encourage the Scout Movement by providing financial aid and helping to secure suitable sites for scout camps. Schools should organize for the students to go to these camps for a few days every year. The Central Government should be made responsible for the NCC (National Cadet Corps) for its proper maintenance, improvement and expansion.
- (xv) **Physical Education:** Records of physical activities need to be maintained for all students and teachers to be involved in it. Each school should be equipped with at least one physical education specialist and one or more teachers as assistants.
- (xvi) **Examination and Evaluation:** The number of examinations should be reduced and should be made objective. The system should be symbolic rather than numeric. Public examinations should be there after the completion of the secondary school course. Remodelling of the examination system was to be carried out in every state. This entailed the abolishing of public examinations (if any) before the end of the High schools, instead also giving more importance to periodic tests rather than annual examination results. School leaving certificates and records will, thus, provide information of the students activities and details from the entire year instead of just the annual examination result.
- (xvii) **Teachers:** The probation period for teachers should be of one year. The teachers should be provided with quarters to be able to stay near the schools. To combat the shortage of teachers for specialized courses like technical engineering, the teachers should be paid above market salaries. The State Government should revise the pay scales as per the different categories prescribed by the Central Government. Teachers' salaries should be at par with personnel from other walks of life with similar qualifications and responsibilities. The system of triple benefit schemes for teachers, namely pension-cum-provident fund-cum-insurance should be introduced in all states. The children of teachers should be provided free education throughout the schooling period. Teachers should be given travel concession and leave facilities when they wish to attend educational seminars or go on vacation.
- (xviii) **Teacher's Training:** Two types of teachers' training institutes were recommended by the Commission. Those who have taken the School Leaving Certificate or Higher Secondary School Leaving Certificate should take two years of training, and for graduates, the training should be of one academic year. During the training, teachers should be given the stipend. Seminars and training camps should be organized for a select group of headmasters and teachers on a regional basis so that they can get trained by experts about new examination techniques. If necessary, foreign experts

who are specialists in their field could also be invited for this purpose. These teachers can be taught the introduction of objective tests, adoption of the system of symbolic marking, evaluation and grading of school records, and so on.

- (xix) **Organization and Administration:** There should be a Board of Secondary Education and State Advisory Boards. The schools should be inspected for their problems.
- (xx) **Management of Schools:** The Managing Boards should be registered and no board member should directly or indirectly interfere with the internal administration of the school. In each district, a Class I District Education Officer should be appointed who would be directly in charge of Secondary Education for the district. In addition, District Inspectors or District Superintendents who are usually in Class II of the Education Service should be appointed to assist the officer. The Education Officer should be in charge of coordinating all education related work within his district. A panel of experts, with the Inspector as Chairman, should inspect the schools every three or four years.
- (xxi) **Schools Building and Equipment:** There should be playgrounds in all the schools. Care should be taken to have 10 square feet per student in the classroom. The optimum number of boys in a class should be 30 and should not exceed 40 in number. It was recommended that an initial grant of about ₹15,000 should be sanctioned for each school to purchase adequate equipment, such as a laboratory for General Science, material for crafts and charts, posters and audio-visual aids, and so on and aids for teaching social studies. Attempts to meet a part of the school's expenses from the sale of articles made by the students should be encouraged. The scheme, which would be spread over seven years, involves an expenditure of about ₹2 crore per annum for the whole country. This cost was to be shared by the Central and State Governments in the ratio 1 : 2, the balance being funded by the schools concerned from independent sources.
- (xxii) **Hours of Working and Vacations:** The total number of working days in the school should not be less than 200, and the working hours should not be less than 35 periods per week with 45 minutes each. The schools should work regularly for six days. Summer vacations of two months and two breaks of 10–15 days at suitable periods should be there in a year.
- (xxiii) **Finance:** Industrial Cess should be levied to be utilized for the education.
- (xxiv) **Study of Languages:** During the middle school stage, every child should be taught at least two languages. English and Hindi should be introduced at the end of the Junior Basic stage. At the Higher Secondary stage, at least two languages should be studied. The mother tongue or the regional language should be the medium of instruction throughout the secondary stage.
- (xxv) **Revision of Curriculum and Introduction of the New Curriculum in High Schools:** Every High school in the country should be able to, in the the next seven years, proficiently teach General Science, Social Studies and Crafts. Refresher courses, seminars and conferences should be organized for the school teaching staff on an All-India and State basis every year, so

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that there can be a productive interchange of ideas and staff can be made aware of new and innovative methods of teaching.

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Merits of the Commission

- Suggestions regarding the levy of Industrial Educational Cess
- Emphasized the provision of Higher Secondary Education according to the 3 A's (Age, Ability and Aptitude)
- Developing democratic citizenship
- Improvement of vocational efficiency
- Development of personality
- Development of qualities of leadership
- Multipurpose schools—provide varied types of courses for students with diverse aims, interests and abilities
- Suggested for the improvement of the system of evaluation
- Raising the standards of teachers
- Tax exemption for the promotion of educational facilities
- Improvement in methods of teaching
- Recommendation for medical check-ups

Demerits of the Commission

- No programme of action
- No financial estimates were calculated
- Recommendations for the structure of secondary education were not clearly defined
- Non-availability of qualified teachers
- Unpopularity of multipurpose schools
- Expansion occurred without quality
- Education (vocational studies) did not facilitate the task of finding suitable manpower for industries
- Lack of coordination between growth of manpower needs, employment opportunities and output of secondary schools
- No definite guidelines for conversion of high schools into higher secondary schools

3.3.2 Kothari Commission and Evolution of 10+2+3 Education System

The report of Kothari Commission was divided into four sections:

Section I: deals with general problems.

Section II: deals with education at different stages and in different sectors.

Section III: deals with the implementation of the various recommendations and programmes suggested by the Commission.

Section IV: consists of supplementary papers.

The programmes of educational reconstructions proposed in the Report fall into three broad categories:

- (i) Internal transformation of the educational system so as to relate it to the needs and aspirations of the nation.
- (ii) Qualitative improvement of education so that the standards achieved are adequate, keep rising continuously and at least in a few sectors become internationally comparable.
- (iii) Expansion of educational facilities on the basis of manpower needs and with an accent on equalization of educational opportunities.

The following were the major recommendations of the Kothari Commission:

- Important role of education in national development
- Stress on science and mathematics
- Introduction of work experience as an integral part of the school curriculum
- Need for vocationalization of education
- Introduction of a common school system
- Educational structure—12 years of schooling and a 3-year degree course
- About 234 instructional days with at least 1,000 hours in the schools and 216 days in colleges
- Free textbooks at the primary stage
- Adequate number of scholarships
- Identification of gifted students and their nurture
- One residential school in each community development block
- Provision of mid-day meals
- Facilities for learning while earning
- Promotion of the education for the handicapped
- Special measures for the education of the backward students
- Development plan for each district
- Enrolment of between 300 to 450 in a secondary school
- Schools should have the freedom for experimentation in their curricula
- Moral and religious education
- Continuous and objective evaluation
- Establishment of school complexes
- Establishment of neighbourhood schools
- Organization of State Evaluation
- Make Correspondence courses available
- Better pay scales and service conditions for teachers
- Passing of Education Acts
- Three Language Formula
- Delinking degrees from jobs
- Six per cent of Gross National Product (GNP) to be spent on education

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An important contribution of the Commission is a detailed analysis of financing of education in India. The financial analysis attempted in this report was the first of its kind in India. In fact, there were very few studies on the economics and financing of education even in other countries at that time. The Commission made a detailed expenditure analysis—by levels and objects, a detailed source-wise analysis of funds, unit cost analysis, and a detailed estimate of resources required for education for the next 20 years in constant prices. The detailed framework provided insightful analysis and was of great significance for the researchers in economics and financing of education, and for educational planners as well. The Commission noted the absence of studies and the critical need for such studies, and recommended support to universities for research to:

- Look into a scheme for expansion and improvement
- Constitute the Indian education service

Internal transformation of the education system

For the internal transformation of the system of education, the following programmes were to be given highest priority:

- (a) Work experience as an integral part of general education, vocationalization of education at the secondary level, improvement of professional education, and research and promoting national consciousness
- (b) Introducing a common school system, making social and national service compulsory and developing all modern Indian languages
- (c) Making science education an integral part of all school education and developing scientific research
- (d) Inculcation of high values—social, moral and spiritual—at all stages of education

Qualitative and quantitative programmes

The Kothari Commission identified three important facets of education that would bring about the desired ‘educational revolution’:

- (a) Internal transformation in order to relate education to the needs and aspirations of the nation
- (b) Qualitative improvement to achieve the adequate standard, to keep it continually rising and to become internationally comparable in some of the sectors
- (c) Expansion of education facilities on the basis of manpower needs and with the consideration of equalization of educational opportunities

Public school and the Education Commission: The Commission has spoken of these institutions in scathing terms. The system of schools was largely reserved for those who have the capacity to pay high fees, ‘was transplanted in India by British administration and we have clung to it for so long because it happened to be in tune with the traditional hierarchal structure of our society’.

Wide gulf between the classes and masses: The Commission noted that ‘what is worse, this segregation is increasing and tending to widen the gulf between the classes and the masses’.

Undemocratic nature of Indian school system: The undemocratic feature of the Indian school system has been described by the Commission as one of the major

weaknesses of the present educational structure. The number of children who receive scholarships is not very large; sometimes even the most able among them are unable to find access to good schools, while the economically privileged parents are able to 'buy good education for their children'.

The Commission said that whatever the past history of the so-called public schools, they had no valid place in the new democratic society the Indians desired to create.

According to the Commission, education had a very extensive role to play in changing the members of society and the society itself. It had to be entirely reformed and relate to the needs and aspirations of the people so that it may serve as a powerful tool of social, economic and cultural transformation.

Programmes for improving the quality of education: For national development, the quality of education is crucial for the nation, and the nation must be prepared to provide this. According to the Commission's recommendations, the major programmes for qualitative improvement are as follows:

- Raising the economic, social and professional status of teachers
- Improving the quality and scope of teacher education and in-service programmes
- Radical reform, especially in Science and Mathematics
- Vigorous improvement in the method of teaching and evaluation
- Providing quality textbooks and other teaching material
- Introduction of a nation-wide programme for the improvement of schools and colleges where each institute finds congenial conditions to strive to achieve the best results of which it is capable
- Establishment of 'quality' schools to act as pace-setters in all districts
- Supervision and reorganizing of the State departments
- The reorganization of the education structure on the 10+2+3 pattern

Expansion Programmes

The Commission hoped that by 1986, 5 per cent of the 3–5 age groups and 50 per cent of the 5–6 age groups would find places in nursery schools or classes. As per the recommendations of the Commission, five years of education should be given to all. It gave highest priority to free and compulsory education up to the age of 14 years. The Commission realized that it would not be financially possible for several years to provide universal secondary education as the problems and policies of expansion at the secondary stage are different from those in primary education. Another problem faced would be to enlist half the enrolment at the higher secondary stage in vocational education. According to the recommendation, the expansion of higher secondary and collegiate education should be related to manpower needs and must be selective. The programme of equalization of educational opportunities, visualized by Kothari Commission, included the reduction of the regional imbalances to the minimum, increasing the provision of free education and scholarships, paying special attention to the education of girls, and placing adequate emphasis on the spread of education among backward classes including the Scheduled Castes and the Scheduled Tribes. A nationwide campaign was to be launched for the complete liquidation of illiteracy within 20 years.

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The Commission also recommended that 6 per cent of the GNP should be spent on education. The Commission made a detailed analysis of the past trends in financing education in the post-Independence period, estimated the financial requirements of the educational system in India up to 1985–86, and recommended that ‘if education is to develop adequately, the proportion of GNP allocated to education should rise to 6 per cent in 1985–86’. Of the several recommendations made by the Commission, this 6 per cent of GNP is one that was accepted and resolved by the Government of India (1968). In the National Policy on Education (NPE) 1968, it was recommended ‘to increase the investment in education so as to reach a level of expenditure of 6 per cent of the national income as early as possible’. Since the goal could not be reached, the Government of India reiterated in 1986 its commitment to reach the target and stated in the NPE 1968: ‘it will be ensured that from the Eighth Five-Year Plan onwards it (the outlay on education) will uniformly exceed to 6 per cent of the national income.’

Given the inadequate performance, the goal was to be reiterated again in the NPE (revised) 1992. The review committee on National Policy on Education [also known as Acharya Ramamurti Committee, 1990] made it clear that 6 per cent of national income should be devoted to education.

Other Recommendations

In order to relate education, the Commission recommended the following objectives:

1. **Increase in productivity:** The Commission suggested that education must be related to productivity in order to increase national income. In order to link education and productivity, the Indian Education Commission made the following recommendations:

- Science is the basic component of education and culture; so it should be made an integral part of school education.
- To inculcate the value of manual work, the Commission recommended the introduction of work experience in school education.

To meet the increasing needs of technical personnel in industry, agriculture and trade, the Education Commission recommended introducing vocational subjects in the school curriculum. It also opined that vocationalization will bring education into a closer relationship with productivity.

2. **Promoting social and national integration:** According to the Commission, social and national integration is an important objective of a national system of education. The Commission made the following recommendations for strengthening social and national integration through education:

- To make education a powerful instrument of national development, the common school system of public education should be adopted.
- Bridge the gulf between the educated and the uneducated, intellectuals and masses, social and national service should be made an integral part of school education.
- As language is a firm adhesive for social and national integration, suitable provisions should be made for teaching the mother tongue, Hindi and other modern Indian languages in schools.

3. **Education and modernization:** The present society is a science-based society. The present century has made tremendous advancements in scientific and technical

knowledge as a result of an explosion of knowledge. In such a situation, one of the main functions of education is to keep pace with this advancement of knowledge. Another feature of modern society is the rapid social change. In this situation of change, the school must always be alert if it is to keep abreast of significant changes. An education system which does not renovate itself continuously becomes outdated and is a hindrance to progress. To keep pace with modernization, the Education Commission was of the opinion that 'greater emphasis must be placed on vocational subjects, science education and research'.

4. **Developing social, moral and spiritual values:** The national system of education should emphasize on the cultivation of social, moral and spiritual values among students. For this purpose, the Commission made the following recommendations:

- The Central and State Governments should ensure the inclusion of educating the students about moral, social and spiritual values at all levels. This has been recommended by University Education Commission under the section on religious and moral instruction.
- In order to develop social, moral and religious values, some periods should be provided in the timetable for teaching of the same. Instruction of this type should be given by general teachers.
- The university departments should be especially concerned with the ways in which these values can be taught wisely and effectively, and should undertake preparation of the special literature for use by students and teacher.

5. **A common school system:** In a situation of the type we have in India, it is the responsibility of the educational system to bring the different social classes and groups together, and thus promote the emergence of an egalitarian and integrated society.

The Commission commented that if the education system was to be seen as a tool of national integration, with the aim of bringing the different sections of Indian society together, a common school system of public education was the best solution to this problem.

Characteristics of the common school system

According to the Commission, the characteristics of a common school system are as follows:

- All children, irrespective of caste, creed, community, religion, economic sanctions or social status, will have access to education.
- Getting access to good education will depend on not how much money one has or to which class in society the person belongs to, but on talent in this system.
- Schools will maintain adequate standards, and there will be a fair number of good institutions.
- Under this system, education will be free and the average parent will not feel the pressure to send his children to an expensive school which is outside the system.

6. **Recommendations which received little attention:** The following areas from among the recommendations are by and large still neglected. They have not received the due attention they deserved.

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Check Your Progress

3. State one aim of Secondary Education Commission with regard to secondary education.
4. Name a defect in school curriculum as observed by Secondary Education Commission.
5. Cite a recommendation made by Secondary Education Commission.
6. Give two demerits of recommendations made by Secondary Education Commission.
7. Give one method recommended by Kothari Commission to improve the quality of education.

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- Creation of school complexes
- Development of 'neighbourhood' concept of educational institutions
- Establishment of suitable organizations for assessing manpower needs and of employment opportunities at the national and state levels
- Provision of part-time education on a large scale
- Evolving integrated plans of development
- Development of a large programme of scholarships in all states and sectors
- Creation of the Indian Education Service
- Creation of District School Boards
- Strengthening of the Offices of the District Educational Officers
- National Education Act
- Creation of a National Board of School Education
- Establishment of a Farm University in each State
- Recognition of autonomous educational institutions
- Freedom to Headmasters
- Making Institutional Plans as an integral part of District, State and National Plan of Education
- Developing partnership between educational authorities and industry
- Discouragement to public schools
- Spending 6 per cent of GNP on education

3.3.3 National Policy on Education (NPE 1986)

After the formulation of the Policy in 1968, it was stipulated that various educational programmes would be undertaken, and these programmes will be reviewed every five years. But no such review was done for the next 17 years.

Main Features of NPE

The main features of NPE are as follows:

Essence and Role of Education

This includes education for all, for cultural development, for the development of the mind and spirit and scientific temper, for the development of manpower for economy, and for developing the ideals of socialism and democracy as per the Constitution.

National System of Education

It was the most distinctive feature of NPE (1986). The following were the main features of the National System of Education:

- **Based on the Constitution of India:** The National System of Education was based on the Constitution as per its philosophical and sociological foundations. It derived its inspirations from the ideals and values of democracy, secularism and socialism.
- **Universal access to education:** The objective of the National System of Education was that all students irrespective of caste, creed, location or sex have the right to quality education till a given age. The government was responsible for the funding of this initiative. The 1968 Policy had recommended the establishment of a common school system to fulfil this goal of education for all.

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- **Common educational structure:** The National System of Education visualized a common educational structure. The 10+2+3 structure was established throughout the country. The first ten years were divided into five years of primary education, three years of upper primary, followed by two years of High School. The +2 stage was also encouraged to become a part of school education throughout the country.
- **National curriculum framework:** Flexible national curriculum was to be the backbone of the National System of Education, with fixed and flexible components. The fixed component would include the history of India's freedom movement, the Constitutional obligations and other material to encourage national integration. These cross-cutting parts would be designed to promote the value of India's heritage, love of equality, democracy and secularism, equality of the sexes, protection of the environment, removal of social barriers, observance of the small family norms, and encouragement of the scientific temperament. All educational programmes were to be implemented strictly on the basis of secular values. These were to be taught through subject areas.
- **Education for international understanding:** Education has to strengthen the world view of peace and understanding between nations, treating the whole world as one family and motivating the younger generations towards international cooperation and peaceful co-existence as India has always worked for peace and understanding between nations.
- **Equality of opportunity of education:** To provide for equal opportunity to all not only in access but also in the conditions for success, equality was emphasized. The basic purpose was to remove prejudices and complexes transmitted through the social environment and the accident of birth.
- **Determination of minimum levels of learning:** Each stage of education had to fulfil a basic minimum of learning. Students were encouraged to appreciate the diverse cultural and social systems of the people living in different parts of India.
- **Promotion of regional languages:** Translation of books into different languages was encouraged so that students from all over the country would learn to appreciate the literature from different parts of the country, and the young could rediscover India through their own image and perception.
- **Inter-mobility in higher education:** Inter-regional mobility was encouraged at the higher education and technical education levels so that equal access was available to every deserving Indian regardless of his origins.
- **Pooling of resources:** Different science and technological institutions were encouraged to pool their resources and research findings, especially for projects of national importance.
- **Facilities for open and distance learning:** Distance learning and correspondence courses provided opportunities to the youth, housewives, agricultural, and industrial workers and professionals to continue the education of their choice, at the pace suited to them, while still being able to carry on with their daily lives.
- **National institutions:** There was a proposal to strengthen the national institutions, including University Grant Commission, National Council of Educational Research and Training, National Institute of Educational Planning and Administration, All India Council for Technical Education, Indian Medical Council, National Council of Teacher Education and National Institute of Adult Education, and so on.

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- **Partnership between State and Centre:** The Centre and States were to make their partnership meaningful in the field of education. The States' role and responsibilities were essentially unchanged, while the Union Government was to bear a greater responsibility in the reinforcement of national integration as a part of education.
- **Education for all:** Attempts were to be made to provide elementary and adult education to all, and NPE emphasized the removal of disparities to equalize educational opportunities for all, irrespective of their caste, creed or economic background.

'Education for all' meant the provision of education for the following sections of society which were normally neglected:

 - *Education for women's equality:* The National Education System was to initiate a positive, interventionist role in the empowerment of women and to foster the development of new values through redesigned curricula (vocational, technical and professional education at different levels), textbooks, the training and orientation of teachers, decision-makers and administrators, and the active involvement of educational institutions. Women's studies were to be promoted as a part of various courses, and educational institutions were to be encouraged to take up active programmes to further women's development.
 - *Education of scheduled castes:* The equalization of the non-SC population at all stages and levels of education, in all areas and in all the four dimensions—rural male, rural female, urban male and urban female was emphasized.
 - *Education of scheduled tribes:* School buildings were to be constructed in the tribal areas on a priority basis with funds allocated for education and for different schemes, such as the Jawahar Rozgar Yojana, Tribal Welfare schemes, and so on. The curriculum and instructional materials needed to be in the regional languages. Incentive schemes were to be offered to the Scheduled Tribes, keeping in mind their special needs and lifestyles. Anganwadis, Non-formal and Adult Education Centres were also to be set up in areas which were predominantly inhabited by the Scheduled Tribes.
 - *Other educationally backwards sections and areas:* Appropriate incentives and infrastructure were to be provided to the educationally backward sections of society, particularly in the remote rural areas.
 - *Minorities:* Education of minority groups which are educationally deprived or backward were to be given greater attention. Constitutional guarantees were given, so that they could fund their own educational institutions which would be in the best interest to preserve their language and culture. Textbooks and curricula would also be customized.
 - *Handicapped:* Steps to include the physically and mentally handicapped into the mainstream as equal partners and to prepare them for normal life were encouraged. Teachers received special training to deal with the special needs of handicapped children.
 - *Adult education:* Adult education emphasized the ability to read and write.
- **National Literacy Mission:** It was aligned to the national goals, such as alleviation of poverty, national integration, environmental conservation, observance of the small family norm, promotion of women's equality, universalization of primary education, basic health care, and so on.

- **Expenditure on education:** Efforts were to be made to spend 6 per cent of GNP on education.

NPE and Early Childhood Education and Care

National Policy on Education (NPE) emphasized the investment in the development of young children, particularly from sections of the population in which first generation learners predominate.

Important Features and Programmes

- NPE has used the term Early Childhood Education and Care (ECCE) in place of pre-primary or nursery education. It lays stress on the holistic nature of child development, viz., nutrition, health, social, mental, physical, moral and emotional development, and recommends that ECCE should be suitably combined with Integrated with Child Development Services (ICDS) Programme, wherever possible.
- The span under consideration in ECCE is from conception to about six years.
- ICDS includes six services: (i) supplementary nutrition, (ii) immunization, (iii) health check-up (iv) referral services, (v) health education, and (vi) non-formal pre-school education.
- Day care centres should be provided as a support service for universalization of primary education to enable girls, engaged in taking care of siblings, to attend school and as a support service for working women belonging to poorer sections.
- Programmes of ECCE should be child oriented.
- Programmes of ECCE should focus around play and the individuality of the child.
- Formal methods and introduction of the ₹3 should be discouraged at this stage.
- The local community should be fully involved in ECCE programmes.
- A full integration of child care and pre-primary education should be brought about as a feeder and to strengthen primary education and human resource development.

Elementary Education

The three areas in elementary education which were focused on are as follows: (i) Availability and access to education for all; (ii) Compulsory education for children up to 14 years of age; and (iii) Standardization in the quality of education to ensure that all children receive the same essential levels of learning.

- **Child-centred approach:** Education at the primary stage should focus around play so that children start to enjoy learning. First generation learners were to be allowed to set their own pace and to be given additional assistance when required so that they may improve their learning through repetition and practice. There was to be no detention at the primary stage and the practice of corporal punishment was banned from the entire education system. Vacations and school timings were to be fixed as per the convenience of the children.
- **School facilities:** All primary schools were to be provided with the essential facilities. The objective of Operation Blackboard was to provide three large rooms which could be used in all weather, and blackboards, maps, charts, toys, other necessary learning aids and a school library. There were to be at least three

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teachers in every school, with the ultimate aim being to have one teacher per class. At least 50 per cent of the teachers were to be women. Operation Blackboard was to be extended till the upper primary stage.

- **Non-formal education:** Non-Formal Education (NFE) Programme was started keeping in mind school dropouts, children from habitations without schools, working children and girls who cannot attend whole-day schools. The curriculum was framed on the lines of the national core curriculum, but took into account the needs of the learners and the environment they stayed in. The instructional material was to be of good quality and to be provided free of cost to all students. The government was in over-all charge of NFE. Voluntary agencies and Panchayati Raj Institutions were to assist in the implementation of the NFE programmes.

Secondary Education

Access to secondary education was to be widened with emphasis on enrolment of girls, SCs (Scheduled Castes) and STs (Scheduled Tribes), particularly in science, commerce and vocational streams. This stage of education includes the different streams of science, the humanities and social sciences. In addition to this education, information regarding the history and culture of India was to be imparted to the students so as to instil a feeling of national pride and duty in them.

Boards of Secondary Education were to be reorganized and given the authority and responsibility to improve the quality of secondary education. The introduction of computer skills was to be encouraged so that children could face the challenges of the emerging technological world. The curriculum was to include a proper understanding of the work culture and a caring work environment was to be encouraged.

Manpower for the industries was to be provided by vocationalization through specialized institutions.

Navodaya Vidyalayas (Pace-setting Schools): Good quality education was to be made available to children with special talent or aptitude, to proceed at a faster pace whether they could afford to pay for it or not. Special residential schools, were set up for this purpose. The objective was to encourage the raising of levels of excellence on an equality basis (with reservation for the rural areas, SCs and STs). These schools would also promote national integration by the provision of opportunities to talented children from all over the country, when they came together to live and learn, and be part of a nationwide effort to improve the standard of learning in schools.

Health planning and health service management

Health education at the primary and middle levels will win over the family and community, and also familiarize the higher secondary students with the advantages of health-related vocational courses. Similar vocational courses should be designed for Agriculture, Marketing, Social Services, and so on. Vocational education courses encourage the growth in attitudes, knowledge, and skills for self-reliance and self-employment.

Higher Education

Higher education is a major contributor to national development as it empowers people with information and skills which are necessary to combat the critical social, economic, cultural, moral and spiritual issues facing humanity.

- Expansion of facilities in the existing institutions was proposed. Courses and programmes were to be redesigned to meet the demands of specialization better.

- State level planning and coordination of higher education was to be done through Councils of Higher Education. UGC and other to-be-Councils were to maintain the standards.
- Audio-visual aids and electronic equipment was to be introduced; development of science and technology curricula, and material, research and teacher orientation was given emphasis.
- Training of teachers on a continuous basis was recommended. Teachers' performances needed to be constantly assessed as posts needed to be filled only on merit.
- High quality research was to be encouraged in universities.
- A national organization to encourage higher study in the fields of agriculture, medicine, law, and so on, was set up.

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Open university and distance learning

To increase the opportunities for higher education as an instrument of democratizing education and to make it a lifelong process, the open learning system was initiated. Indira Gandhi National Open University (IGNOU) was established in 1985 to fulfil these objectives. National Open School was also established and open learning facilities were extended at the secondary level in all parts of the country.

Delinking degrees from jobs

A beginning was made to de-link degrees from jobs in selected areas like in services, for which a university degree need not be a necessary qualification. An appropriate body such as National Evaluation Organization was to be established to conduct tests to determine the suitability of candidates for specific jobs and to bring about an over-all improvement in testing and measurement.

Technical and management education

The two streams of technical and management education were to function separately. Programmes of computer literacy were to be organized from the school stage. Technical and management education programmes, (education in polytechnics) were also to be on a flexible modular pattern based on credits, with provision for multi-point entry. A strong guidance and counselling service would be provided.

For women, economically and socially weaker sections, and the physically handicapped suitable curricula were to be designed. This specialized teaching would mean the need for more teachers who could handle teaching these vocational courses. Thus, there was a demand for training courses to meet these demands.

Self-employment as a career option was to be encouraged among students. This training in entrepreneurship was to be provided through modular or optional courses in degree or diploma programmes.

Innovation, research and development

All higher technical institutions were to explore new methods of ensuring the availability of qualified teachers and staff who were capable of carrying out research to improve the present technology and develop new ones. The scope for cooperation, collaboration and networking relationships between institutions at various levels was to be utilized. Proper maintenance and an attitude of innovation and improvement was to be promoted

systematically. Major steps were to be taken up for cost-effectiveness and to promote excellence.

Main Features and Recommendations of NPE

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The main features recommended by NPE are as follows:

1. Making the system work

Education should be nurtured in an atmosphere of intellectual creativity and freedom to innovate. Along with this state of inventiveness, discipline was also important as a state of disorder was not conducive to the thriving of new methods for education.

2. Reorienting the content and process of education

The gap between education and India's rich culture needed to be bridged as India's history and culture cannot be rooted out by modern technologies. Education aimed at blending modern-day technology and ancient traditions.

The curricula and processes of education were to enrich Indian culture. Children were to be taught to appreciate beauty, harmony and refinement. Respected people in the community, whether they were formally educated or not, were to assist in handing down the wealth of Indian culture to future generations.

Linkages were to be established between the university system and institutions of higher learning in Art, Archaeology, Oriental Studies, and so on. Specialized disciplines of Fine Arts, Musicology, Folklore, and so on, were also to be paid attention to. Teaching, training and research in the following disciplines were to be strengthened:

- **Value education:** Rearranging the curriculum to enable education to instil in future generations social and moral values was very important. Due to the erosion of values in modern life, such value education was aimed to help eliminate obscurantism, religious fanaticism, violence, superstition and fatalism.
- **Books and libraries:** Books should be made available at low prices to ensure that education can benefit everyone whether they can afford it or not. Research should be undertaken into improving the quality of books, promoting the reading habit and encouraging creative writing. Translation of foreign books into Indian languages was to be supported. Special attention was to be paid to the production of quality of books for children, including textbooks and work-books. A nationwide movement for the improvement of existing libraries and the establishment of new ones was to be taken up.
- **Media and educational technology:** Educational technology was to be employed in the spread of useful information, the training and re-training of teachers, to improve quality, sharpen awareness of art and culture, inculcate abiding values, and so on, both in the formal and non-formal sectors. The media has a profound influence on the minds of children as well as adults. Inappropriate radio and TV programmes which conveyed the wrong message regarding moral and social values should not be aired. The media should accept responsibility to transmit the correct message. The production of children's films of high quality and usefulness was to be encouraged.
- **Work experience:** Purposive and meaningful manual work, i.e., **work experience** was to be organized as an integral part of the learning process resulting in either goods or services useful to the community. This was to be considered as

an essential component at all stages of education. The student would gain training in skills according to his interest and abilities, which would help in his future entry into the workforce.

- **Education and environment:** Consciousness of the environment is to be created among all. Beginning with the child, it must permeate to all ages and all sections of society. This aspect will be integrated in the entire educational process.
- **Population education:** To contain the growth of population, population education must be given due importance. Starting at the primary and secondary levels, students should be made aware of the dangers of an exploding population and should be informed about family planning and responsible parenthood.
- **Mathematics teaching:** Mathematics should be considered as the vehicle to train a child to think, reason, analyse and to articulate logically. It should be treated as any subject involving analysis and reasoning.
- **Science education:** To develop well-defined abilities and values, such as the spirit of inquiry, creativity, objectivity, the courage to question and an aesthetic sensibility in children, science education needs to be given to all. The learner can acquire problem-solving and decision-making skills and can discover the relationship of science with health, agriculture, industry and other aspects of daily life.
- **Sports and physical education:** Sports and physical education are an integral part of the learning process, and have to be included in the evaluation of a performance. A nationwide infrastructure consisting of play fields, equipment, coaches and teachers of physical education was to be built as a part of the School Improvement Programme. Open spaces available in urban areas were to be reserved for playgrounds. Efforts were to be made to establish sports institutions and hostels where specialized attention was to be given to sports activities and sports-related studies, along with normal education. Due stress was to be laid on indigenous traditional games.
- **Yoga:** Yoga was to receive special attention as a system which promotes an integrated development of body and mind. Efforts were to be made to introduce Yoga in all schools.
- **Role of youth:** Through educational institutions, opportunities were to be provided for the youth to involve themselves in national and social development. Students were encouraged to participate in schemes like National Service Scheme (NSS), National Cadet Corps (NCC), and so on. Youth should also be encouraged to participate in voluntary programmes like the National Service Volunteer Scheme.

Evaluation Process and Examination Reform

Appraisal of performance is an important part of any process of learning and teaching. Examinations are the tools used to assess the students' learning and to bring about improvements where required. So the main objective of the examination system is to give an accurate report of the students' retention. Continuous and comprehensive evaluation includes the testing of both bookish and practical knowledge. Effective use of this type of appraisal by teachers, students and parents ensures an all-round development of the child.

Examinations at the external level should not get undue importance; instead, institutions should be able to carry out their own evaluations. A National Examination

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Reform Framework is a guideline which can be adjusted according to the specifications of the examining authority.

1. The teacher

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The socio-cultural ethos of a society is reflected in the status of its teachers. So teachers should have the freedom for innovation. The recruitment of the teachers should be devised in order to ensure merit, objectivity and conformity with spatial and functional needs. The pay and service conditions should be as per their social and professional responsibilities. A code of professional ethics for teachers should be prepared. Teacher preparation is to be given due importance with pre-service and in-service components. District Institutes of Education and Training (DIET) should be established for elementary school teachers. National Council for Teacher Education (NCTE) needs to be supported with necessary resources.

2. Management of education

High priority should be given to the planning and management of education. This can be achieved by decentralization, people's involvement including association of non-governmental agencies and voluntary efforts. Involvement of women should be sought and they should be inducted in the planning and management of education.

At the national level, Central Advisory Board of Education (CABE) will play a pivotal role in reviewing educational development and bring changes to improve the education system. Indian Education Service will be established as a national service.

At the State level, State Advisory Boards of Education on the lines of CABE will be set up. Educational planners, administrators and heads of the institutions are to be given special training.

District Boards of Education should be created to manage the education up to the higher secondary level.

3. Voluntary agencies and aided institutions

Non-governmental Organizations (NGOs) including social activists groups should be encouraged to establish institutions.

4. Resources and review

Making investment in education is the only way to achieve the egalitarian goals and the development oriented objectives of Indian society. This was realized by Education Commission of 1964–66 and National Policy on Education of 1968.

For resources, donations were to be mobilized through communities to maintain school buildings. Raising the fee was also thought of. Levying Education Cess was also another way to improve the resources in a big way. Education was to be treated as an important area of investment for national development. National Policy on Education (1968) had recommended that the government should gradually keep increasing its investment in education till the amount reached the prescribed 6 per cent of the GNP as early as possible. As the target was not achieved, it was important to raise it now, though the actual requirements would be calculated from time to time.

The implementation of the various programmes of the New Policy on Education was to be reviewed every five years.

Advantages of NPE

The advantages of NPE 1986 are as follows:

- (i) **National system of education:** NPE proposed a national system of education to provide access to education of a comparable quality to all students, to have a common educational structure with national curricular framework containing a common core.
- (ii) **Improvement in primary education:** NPE very rightly laid stress on the qualitative improvement of elementary education.
- (iii) **Pace-setting schools:** Setting up of *Navodaya Vidyalayas* is a great landmark in the history of education in India.
- (iv) **Vocational targets:** The policy fixed somewhat realistic targets of covering 10 per cent of higher secondary students by 1990 and 25 per cent by 1995 in vocational courses.
- (v) **Delinking degrees from jobs:** Delinking degrees from jobs in selected areas was started.
- (vi) **Performance and accountability:** Stress was laid on performance and accountability at all levels.
- (vii) **Decentralization of management of education:** The policy very aptly called for evolving a strategy of decentralization and the creation of a spirit of autonomy for educational institutions.
- (viii) **Indian Education Service:** It envisaged that the constitution of Indian Education Service would bring about a national perspective in education.
- (ix) **National Testing Service:** This was helpful in determining the suitability of candidates for specified jobs and pave the way for the emergence of norms of comparable competence across the nation.
- (x) **Raising resources:** The policy suggested appropriate methods of financing education: (a) beneficiary communities to maintain the school building and supplies of some consumables; (b) raising fees at the higher levels of education; (c) levying a cess or charge on user of research and development agencies; and (d) affecting saving by the efficient use of facilities.

Disadvantages of NPE

The disadvantages of NPE 1986 are as follows:

- (i) **Financial aspects not worked out:** Workable document backing the financial resources was missing and the financial implications were not worked out.
- (ii) **Too much of community help:** The community was more into contributing to political parties rather than educational purposes.
- (iii) **Ignorance of basic system:** There was no reference to basic education at the school level.
- (iv) **Neighbourhood school concept ignored:** The Neighbourhood School Concept, as recommended by Kothari Commission for eliminating segregation based on economical status, was ignored.

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- (v) **Working hours in schools:** Increased working hours in educational institutions should have been recommended for the optimum use of human resources.
- (vi) **Ignorant to the existing public schools:** NPE evaded the commercialization of education by most of the public schools.
- (vii) **Multiplication of institutions:** There was no use of setting up of State Advisory Boards of Education, District Institutes of Education and Training, and District Boards of Education.
- (viii) **No check on working of minority schools:** There was no provision for checking the exploitation of staff working in public schools.

Implementation of Policy Programme of Action

A Programme of Action (POA) was announced by Ministry of Education, after the declaration of National Policy on Education. This was the first time that such a programme was developed. A 23-member task force with eminent educationists, experts, senior bureaucrats, and representatives of Central and State Governments were formed to examine the situation. The reports were discussed at meeting of the Central Advisory Board of Education in August 1986, and were approved as Programme of Action. POA includes the vast educational parameters and suggests strategies of implementation.

NPE 1986 and its POA gave priority to UEE and introduced many innovative programmes.

Firstly, the emphasis was shifted to enrollment as well as retention.

Secondly, NPE 1986 sought to adopt meticulously formulated strategies at the grass-roots level all over the country, to ensure children's retention at school. POA 1986 sought to replace enrolment drives by participative planning in which the teachers and the villagers would formulate family-wise and child-wise, and design of action to ensure that every child regularly attended school or a non-formal education centre and completed at least five years of schooling or its non-formal equivalent.

Thirdly, NPE 1986 recognized that unattractive school environment, unsatisfactory condition of buildings and insufficiency of instructional material function were the demotivating factors for children and their parents. Therefore, a drive for a substantial improvement of primary schools and provision of support services was called for. Thus, the scheme of Operation Blackboard was launched.

Fourthly, NPE 1986 recommended the adoption at the primary stage of a child-centred and activity-based process of learning.

Fifthly, NPE 1986 and its POA advocated reconstruction of teacher education, pre-service as well as in-service.

Lastly, NPE 1986 sought to address the aspects of access, viz., access to education of millions of girls and working children who were not able to participate in school system, because of socio-economic compulsions via Non-Formal Education (NFE).

Main Schemes Launched as a Result of POA 1986

1. National system of education

The formulation of a National System of Education was the most distinctive feature of NPE (1986).

2. Reconstruction of curriculum

The curriculum is the one of the most important elements of education through which it can bring about the 'fine synthesis between change-oriented technologies and the country's continuity of cultural traditions as observed by NPE. The curriculum contains subject matter of various disciplines and activities. It fulfils the set tasks. NPE provided the direction and the POA formulated for their implementation worked out the details of the curriculum.

The National Council of Educational Research and Training (NCERT), New Delhi, prepared a National Curriculum for elementary and secondary education. Emerging curricular concerns and imperatives based on socio-cultural, political and economic considerations were included in the curriculum. NCERT revised the curriculum in 2000 and later in 2005.

3. Operation Blackboard

The objective of Operation Blackboard was to provide three large rooms which could be used in all weather, and blackboards, maps, charts, toys, other necessary learning aids and a school library. There were to be at least three teachers in every school, with the ultimate aim being to have one teacher per class. At least 50 per cent of the teachers were to be women. Operation Blackboard was to be extended till the upper primary stage.

4. Navodaya/Jawahar Vidyalayas (Pace-setting Schools)

NPE 1986 envisaged the setting up of model schools, one in each district. Accordingly, a scheme was formulated under which it was decided to set-up co-educational residential schools (*Jawahar Navodaya Vidyalayas*).

Navodaya Vidyalayas are fully residential co-educational institutions providing education up to senior secondary stage. The scheme was started with only two schools on experimental basis in 1985–86. It has covered as many districts in 34 States/Union Territories. The *Vidyalayas* envisaged a new style of growth with identification and development of talented, bright and gifted children predominantly from rural areas. Efforts are made to ensure that at least 33 per cent of the students enrolled are girls.

Migration is a unique feature of *Navodaya Vidyalayas* scheme, whereby 30 per cent of students of Class IX from a *Vidyalaya* located in Hindi speaking area spend one academic year in a *Vidyalaya* located in Non-Hindi speaking area and vice-versa to promote national integration through understanding of the diversity and plurality of country's people, their language and culture.

Main features of Navodaya schools

- Caters to the talented students
- Are residential
- Provides free education
- Caters primarily to rural areas
- Reserved seats for SCs and STs as per actual population in the district
- Foster national integration
- Special emphasis is laid on diagnostic and remedial teaching
- Are expected to provide full scope for innovation and experimentation

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- Schools implement Three Language Formula
- Selection will be based on scholastic aptitude test aimed at eliminating subjectivity

Organization of Navodaya /Jawahar Vidyalayas

In the Ministry of Human Resource Development, a *Navodaya Vidyalaya Samiti*, an autonomous organization was set up to manage these schools and they were affiliated to Central Board of Secondary Education (CBSE). The Central Government bears 100 per cent of the expenditure for running these schools with the responsibility on State Governments who provide land free of cost.

Fall out in the scheme

- Lack of proper planning resulted in infrastructure being missing for the schools
- Inadequate accommodation was the problem faced by *Navodaya Vidyalayas*
- The location was not suitable in certain cases
- Non-availability of experienced staff was another problem faced by the *Navodaya Vidyalayas*
- Teachers selected on merit were not willing to work in the remote areas
- Suitable playgrounds were not available for the schools
- Library facilities were inferior in quality
- Admission tests did not take into consideration the rural background
- Children of middle class were able to get admission in large numbers at cost of lower income group due to coaching facilities
- State Governments felt the burden due to these schools
- Common School System was discarded by the opening of *Navodaya Vidyalayas*

5. **Vocationalization of education**

Vocalization means the introduction of systematic, well planned and meticulously planned programmes to promote in students an appreciation of the dignity of labour and to encourage self-employment. This is aimed to reduce the disparity between the demand and the supply of skilled manpower, and to offer choices to those students who have not yet made their career choice. To achieve this, vocational courses leading to several occupational fields were to be introduced. The government as employers in the public and private sectors had to take the initiative of establishing these vocational courses or institutions.

The 1986 National Policy on Education was modified in 1992 by the P. V. Narasimha Rao government. In 2005, Prime Minister Manmohan Singh adopted a new policy based on the 'Common Minimum Programme' of his United Progressive Alliance (UPA) government. Programme of Action (POA), 1992, under the National Policy on Education (NPE), 1986 proposed to conduct a common entrance examination on all India basis for the admission to professional and technical programmes in the country. For admission to Engineering and Architecture/Planning programmes, Government of India through the Resolution dated 18 October 2001 has laid down a Three-Exam Scheme (JEE and AIEEE at the National Level and the State Level Engineering Entrance Examinations (SLEEE) for State Level Institutions, with an option to join AIEEE. This helps in maintenance of professional standards and also solves problems of overlaps, and reduces physical, mental and financial burden on students.

Check Your Progress

8. Give two main features of National System of Education.
9. What were the two prominent features of ECCE?
10. Why was the National Evaluation Organization established?
11. What was the role played by CABE?
12. How often were the programmes of NPE 1986 to be reviewed?
13. What are Navodaya Vidyalayas?

3.4 SUMMARY

- Secondary Education Commission was appointed under the chairmanship of L. S. Mudaliar on 23 September 1952; the Commission pointed out some defects in the then existing system of secondary education.
- The main aim of secondary education was to produce good citizens with leadership qualities and who are self-reliant according to Secondary Education Commission.
- Kothari Commission set 12 task forces and 7 working groups, interviewed 9,000 men and women interested in education in the country, and toured for 100 days. The report contains 19 chapters. The Commission tried to cover every field and aspect of education. It firmly believed that education is the most powerful instrument of national development.
- Some unique features of the Kothari Commission are as follows:
 - o Not to limit its inquiry to specific sectors or aspects of education, but to have a comprehensive review of the entire education system.
 - o Its firm belief that education is the most powerful instrument of the national development.
- The Ministry of Human Resource Development brought National Policy on Education in 1986.
- The most distinctive feature of the NPE was the National System of Education. This was based on the Constitution of India, and derived its inspirations from the ideals and values of democracy, secularism and socialism.
- The objective of National System of Education was that all students irrespective of caste, creed, location or sex have the right to quality education till a given age.
- National Policy on Education (NPE) emphasized the investment in the development of young children, particularly from sections of the population in which first generation learners predominate.
- Operation Blackboard was launched to provide schools with essential facilities, such as a well-stocked library, blackboards, maps and other necessary learning aids.
- Pace-setting schools, also known as *Navodaya Vidyalayas*, were set up to provide good quality education to children with special talent or aptitude, to proceed at a faster pace.
- Educational reorganization includes the introduction of systematic, well-planned and meticulously planned programmes of vocational education to promote in students an appreciation of the dignity of labour and to encourage self-employment, so as to reduce the disparity between the demand and the supply of skilled manpower, and to offer choices to those students who had not made their career choice.

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3.5 KEY TERMS

- **Work experience:** It means purposive and meaningful manual work.
- **Multipurpose schools:** They are schools with varied courses of interests and with diverse aims, aptitude and abilities; these schools remove all distinctions between students preparing for different courses of studies.
- **UGC:** It is the body responsible for affecting the transfer of all pre-university or intermediate work from university and affiliated colleges to schools.

3.6 ANSWERS TO ‘CHECK YOUR PROGRESS’

1. The different levels of Indian education system are as follows:
 - Pre-primary
 - Primary
 - Secondary
 - Undergraduate
 - Post Graduate
2. The different types of schools present in India are Public/government schools, Private schools, International schools, National Open School and Special-needs schools.
3. One aim of Secondary Education Commission was the development of democratic citizenship.
4. One defect in school curriculum as observed by Secondary Education Commission was that it was bookish and theoretical.
5. One recommendation offered by Secondary Education Commission was that multipurpose schools should be opened with varied courses of interests and with diverse aims, aptitude and abilities. These schools would remove all distinctions between students preparing for different courses of studies, break the sense of inferiority associated with vocational subjects, and, thus, lead to a democratic basis of education.
6. No financial estimates and non-availability of qualified teachers were two demerits of the recommendations made by Secondary Education Commission.
7. One method recommended by the Kothari Commission to improve the quality of education was to improve the quality and scope of teacher education and in-service programmes.
8. The two main features of National System of Education were as follows:
 - (i) It was based on the Constitution of India.
 - (ii) It advocated universal access to education.
9. Programmes of ECCE were supposed to be child oriented, and focus around play and the individuality of the child.

10. The National Evaluation Organization was established to conduct tests in order to determine the suitability of candidates for specific jobs, and to bring about an overall improvement in testing and measurement.
11. The Central Advisory Board of Education (CABE) played a pivotal role in reviewing educational development and improving the education system.
12. The programmes of NPE 1986 were to be reviewed every five years.
13. *Navodaya Vidyalayas* are fully residential co-educational institutions providing education up to senior secondary stage.

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3.7 QUESTIONS AND EXERCISES

Short-Answer Questions

1. What is the basic structure of the Indian education system?
2. What defects were pointed out by the Secondary Education Commission in the school curriculum?
3. List the merits of Secondary Education Commission.
4. Why was the composition of Kothari Commission considered to be of international standard?
5. Write a short note on the aspect of financial analysis as introduced by the Kothari Commission.
6. Which were the subjects included in the Humanities stream as per Secondary Education Commission?
7. What were the programmes introduced by POA 1986?

Long-Answer Questions

1. Write in detail the educational ladder of Indian education system.
2. Elaborate on the recommendations of the Kothari Commission.
3. Discuss the ways in which the recommendations of the Kothari Commission were implemented.
4. What were the recommendations made by the Secondary Education Commission?
5. What were the drawbacks of the Secondary Education Commission? Explain in detail.
6. What were the recommendations made for secondary education by NPE 1986?
7. Discuss the merits and demerits of NPE 1986.

3.8 FURTHER READING

- Aggarwal, J. C. 2010. *Landmarks in the History of Modern Indian Education*. New Delhi: Vikas Publishing House.
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UNIT 4 EDUCATIONAL PSYCHOLOGY

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Structure

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- 4.1 Unit Objectives
- 4.2 Meaning, Nature and Scope of Educational Psychology
 - 4.2.1 Nature of Educational Psychology
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 - 4.5.1 Theory of Connectionism
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 - 4.5.3 Theory of Classical Conditioning
 - 4.5.4 Operant Conditioning
 - 4.5.5 Constructivism
 - 4.5.6 Gestalt Theory of Learning
- 4.6 Summary
- 4.7 Key Terms
- 4.8 Answers to 'Check Your Progress'
- 4.9 Questions and Exercises
- 4.10 Further Reading

4.0 INTRODUCTION

Educational psychology is the most important branch of applied psychology. It is the study of the psychological aspects of educational situations. It is a study of educational problems with reference to psychological facts. Psychology is the science of behaviour and education aims at modifying the behaviour in the most desirable way. The modification of behaviour depends on some fundamental psychological laws and limitations. Educational psychology studies those facts and limitations. It covers the development of the child from early childhood to maturity.

In this unit, you will learn the meaning and scope of educational psychology. You will also learn about the concept and theories of learning.

4.1 UNIT OBJECTIVES

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

- State the meaning and definition of educational psychology
- Discuss the scope of educational psychology

- Explain the meaning and nature of learning
- Discuss the various theories of learning
- Differentiate between the various laws of learning

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4.2 MEANING, NATURE AND SCOPE OF EDUCATIONAL PSYCHOLOGY

Educational psychology consists of two words—psychology and education. Some of the important definitions of educational psychology as given by eminent psychologists are given below:

1. **Anderson** — ‘Educational psychology is a subject to be studied, an area or field of knowledge, a set of application of laws and principles from a wide field of knowledge to a social process, a set of tools and techniques, and a field of research. While general psychology is pure science, educational psychology is its application in the field of education with the aim of socializing man and modifying his behaviour.’
2. **Crow and Crow** — ‘Educational psychology describes and explains the learning experiences of an individual from birth through old age.’
3. **Anusubel, David P** — ‘Educational psychology is the special branch of psychology that is concerned with the nature, conditions, outcomes and evaluation of school learning and retention.’
4. **Encyclopaedia of Educational Research** — ‘Educational psychology is the study of the learner and of the learning-teaching process in its various ramifications (branches) directed towards helping the child come to terms with society with a maximum of security and satisfaction.’
5. **Judd** — ‘Educational psychology is the science that explains the changes that take place in the individuals as they pass through various stages of development.’
6. **Kolesnik, Walter B** — ‘Educational psychology is the study of those facts and principles of psychology that help to explain and improve the process of education.’
7. **Peel, E A** — ‘Educational psychology is the science of education.’
8. **Skinner** — He gives two definitions: (1) ‘Educational psychology covers the entire range of behaviour and personality as related to education.’ (2) ‘Educational psychology is that branch of psychology that deals with teaching and learning.’
9. **Stephen** — ‘Educational psychology is the systematic study of educational growth and development of a child.’
10. **Trow** — ‘Educational psychology is the study of psychological aspects of educational situations.’

A perusal of the above-mentioned definitions shows that educational psychology deals with the conditions that promote or retard the development of the learner. Educational psychology attempts to define, describe and explain the changes that take place in the learner through his various stages of development. It is the study of the human mind as it bears upon learning and teaching activities. Teaching and learning are the focal points of educational psychology. Educational psychology investigates the methods and techniques of imparting education to the learner, discovers a number of general rules and applies these to the practical problems of learning.

4.2.1 Nature of Educational Psychology

Following are the important characteristics of educational psychology:

1. It combines two fields, i.e., education and psychology.
2. It is the scientific study of human behaviour in educational situations.
3. It is one of the many branches of applied psychology.
4. It is concerned with those factors, principles and techniques that relate to the various aspects of child's growth and development.
5. It is concerned with learning situation and the process by which learning can be made more efficient and effective.
6. Educational psychology draws heavily from various branches of psychology, biology, sociology and anthropology.
7. Educational psychology is not as exact and accurate as natural sciences since human behaviour cannot be predicted exactly.
8. Educational psychology is a science of education dealing primarily with *how*, *when* and *what* of education.

Although educational psychology has drawn a great deal from the main field of psychology for its techniques, strategies and solution to problems of education, this branch of science is not merely a discipline made up of borrowed knowledge. It is a special field of study in its own right.

4.2.2 Tasks of Educational Psychology

Well-known psychologist W. A. Kelly (1941) listed the following tasks of educational psychology:

1. To give knowledge about the nature of the child
2. To give understanding of the nature, aims and purpose of education
3. To give understanding of the scientific methods and procedures that have been used in arriving at the facts and principles of educational psychology
4. To present the principles and techniques of learning and teaching
5. To impart training in the methods of measuring abilities and achievement in school subjects
6. To give knowledge about the growth and development of children
7. To assist in better adjustment of children and to help them avoid maladjustment
8. To study the educational significance and control of emotions
9. To give an understanding of the principles and techniques of correct training

4.2.3 Focal Areas and Scope of Educational Psychology

Five major areas covered by educational psychology are as follows:

1. The Learner
2. The Learning Process
3. The Learning Situation
4. The Teaching Situation
5. Evaluation of Learning Performance

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The scope of educational psychology is as under.

1. **Educational psychology helps the teacher to realize the aims of education:** The main aim of education is harmonious and all-round development of the educand. Development comes from within, and the inner potentialities must be understood and approached for the desired modification in the development of the child. Educational psychology helps the teacher to understand the inner potentialities that underlie the behaviour of the child.
2. **Knowledge about the learner is as necessary as knowledge of the subject:** Acquisition of knowledge is no more the main object of education, though it is still a significant component of the process. Acquisition of knowledge also helps modifying the behaviour of the child. For this purpose, the educator will have to consider the mental processes of the child and not just the quality of knowledge that he is putting into the child's mind.
3. **Psychology tests the aims of education:** Educational psychologists can analyse an aim and determine its practicality with reference to the fundamental laws of psychology.
4. **The teaching situation:** Effectiveness of educational psychology becomes relevant only when its findings and methods become a part of educational practices followed by teachers.
5. **Evaluation of learning performance:** It includes the use of statistical methods and conducting research on educational problems.

A course in educational psychology must seek to enrich knowledge and develop competence in the following areas:

1. Individual growth and development
2. The process of learning
3. Motivation
4. Personality
5. Individual differences—heredity and environment
6. Intelligence
7. Measurement and evaluation
8. Elementary statistics in education
9. Special education
10. Elementary research techniques

4.2.4 Relevance and Significance of Educational Psychology for People Engaged in the Process

It is a well-known fact that educational psychology and its applications are very helpful in making the teaching-learning process interesting, inspirational and effective. A century ago, when educational reformer J. H. Pestalozzi wanted to psychologize education, not much heed was paid to it, but today, it is increasingly being realized that the teacher is not merely expected to know his subject adequately but also the various stages of child development and his behaviour so that optimum results are achieved.

1. **Catering to individual differences:** No two persons are exactly alike. Pupils always differ in their level of intelligence, aptitudes, likes and dislikes, and in other

propensities and potentialities. Different varieties of minds are to be trained by the teacher. There are gifted, backward, gifted, talented and handicapped children. All of them should not be treated in the same manner. The knowledge of educational psychology helps the teacher to cater to individual differences of children.

2. **Understanding the learner:** As discussed above, acquisition of knowledge is not the main object of education; it also involves understanding and modifying the behaviour of the child. The educator, thus, has to consider the mental processes of the child.
3. **Understanding developmental characteristics:** Children, or learners, pass through different stages of development—infancy, childhood and adolescence. Each stage has its own characteristics. The teacher must be acquainted with the characteristics of each stage and utilize these in imparting instruction and moulding the behaviour of the individual learner.
4. **Understanding group dynamics:** In recent years, the importance of social behaviour has acquired a great significance. The teacher, therefore, must know the operations of group dynamics in classroom teaching-learning as well as total school and social environment and their effect on learning.
5. **Understanding the nature of classroom learning:** Educational psychology helps the teacher to adapt and adjust his teaching according to the level of learners. When a teacher teaches in a class but if the students do not understand the subject-matter being taught, the teacher must identify the cause. It is possible that the behaviour of the teacher is not conducive to learning. If it is so, the teacher should change the instructional strategy. There could also be many other reasons. It is the science of behaviour which is helpful.
6. **Understanding effective methods of teaching:** Educational psychology has helped in discovering several new approaches, principles and techniques of teaching which eliminate many traditional practices that are irrelevant in modern times. Recent researches have given valuable suggestions on better methods of teaching and memorizing for developing desirable habits. Psychology tells us how significant games and recreation are for the children and how play-way methods transform the drudgery of learning into an interesting task.
7. **Framing the curriculum:** Psychological principles also help in formulating curricula for different stages. Such subjects and activities can be included in the curriculum which are in conformity to the needs of the students, their developmental characteristics, learning patterns and also needs of the society.
8. **Measurement of learning outcomes:** Educational psychology has made great strides in this respect. It has developed many reliable tests and instruments of mental measurement which are proving extremely useful. It is now possible to quantify measurement of mental capacities, basic intelligence, temperamental attitudes and special inclinations of individuals, and develop educational programmes suitable for the individual's level. These measurements show that children differ from each other and that every child is a unique being.
9. **Understanding the learning process:** Teaching and learning go side by side. All education depends upon the learning of new responses and the capacity of a child to learn new responses. Educational psychology discusses the nature of learning theories and types of learning for different age levels and situations.

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Therefore, expertise in educational psychology becomes essential for a teacher to be able to deliver fully.

10. **Knowledge of mental health:** Knowledge of the mental health of the taught is very important for effective teaching-learning. A study of educational psychology helps the teacher to know the various factors which are responsible for the mental ill-health and maladjustment.
11. **Developing scientific attitude:** Educational psychology is helpful in making the teacher more scientific in his educational practices and, consequently, he may become more methodical, objective and rational in his effort.
12. **Educational psychology and nervous system:** The entire education depends on the function of the brain and nervous system. It becomes essential for a teacher to study the nervous system which controls human behaviour. He must have the knowledge of sensory organs which are the gateway of knowledge.
13. **Educational psychology and play:** Play is a natural tendency having great educational potential. Educational psychology helps the teacher to provide for a variety of activities for children.
14. **Educational psychology and productive activities:** A great stress is being laid these days on work experience and socially useful productive work. Educational psychology helps the teacher to know how various activities in these fields can be used for the fulfilment of basic needs of children.
15. **Understanding the significance of research:** Educational psychology helps in developing tools and devices for the measurement of various variables which influence the behaviour and performance of learners as well as teachers.
16. **Guidance for the education of exceptional children:** Educational psychology has contributed a lot for making specific provision and organization of educational programmes for the exceptional children who remained neglected in the past and were denied suitable educational facilities.
17. **Character development:** Educational psychology contributes a lot to the formation and development of character. The teacher learns suitable methods for inculcating character traits and moral principles among the children.
18. **Constructive and creative discipline:** The slogan of the traditional teacher was 'Spare the rod and spoil the child'. 'Flogging the Child' was the chief method. One should adopt a cooperative and scientific approach to modify the behaviour of the students. Emphasis is laid on self-discipline through creative and constructive activities. The modern teacher, thus, plays the role of a democrat, not of an autocrat.
19. **Democratic administration and management:** Democratic practices in functioning of educational institutions are taking the place of autocratic practices. Teachers and students are associated in several areas of school administration.
20. **Use of audio-visual aids or new instructional technology:** It has been experimentally proved that the use of audio-visual aids holds the attention and interests of the children for a longer period and makes difficult concepts clearer, and learning becomes more lasting. Parrot-like memorization no longer holds good.
21. **Timetable framing:** Psychological principles are kept in view while framing the timetable. Efforts are now made not to teach difficult subjects in successive periods or in the last period before interval or at the end of the school day.

22. **Provision for co-curricular activities:** For balanced and harmonious development of children, it is now realized that there should be adequate provision for activities, such as debates, discussions, dramas, social service activities, games and sports.
23. **Use of innovation and projects:** For the improvement of the teaching-learning, several innovative ideas are being introduced. Some of the important innovations are microteaching, programmed instruction, non-graded schooling at the elementary stage and team teaching.
24. **Production of suitable textbooks:** New textbooks are being written keeping in view the intellectual development of children, their needs and interests at different levels. Emphasis is laid on providing sufficient illustrations in textbooks.

In short, educational psychology helps the teacher and the educator in understanding the following:

Whom to teach: The child is to be taught and he should be studied carefully by the teacher. His abilities, aptitudes and interests must be taken into consideration in the teaching-learning process. The knowledge of psychology helps to know individual differences of children.

Who is to teach: The teacher is to teach and he must understand himself thoroughly. 'Physician heal thyself' should be his first watchword. He must have a stable personality.

What to teach: The subject-matter, experiences and activities should be organized according to the various stages of the development of the child.

When to teach: This involves motivational aspects. The mind of the child has to be prepared for the lesson. Motivation is the internal force which accelerates behaviour.

How to teach: The knowledge of psychology helps us to understand the significance of various approaches, methods and techniques of teaching.

25. **Educational psychology and the parents:** An elementary knowledge of educational psychology is very essential for parents also. After all, children spend a good deal of their time at home. There is no doubt that parents are the first teachers. Therefore, educational psychology helps parents,
- (a) In understanding the process of development and growth of their children.
 - (b) In acquainting them with emotional, mental and physical needs of the children.
 - (c) In impressing upon them the necessity of providing wholesome environment to the children so that they are free from anxiety, and lead a stress-free and happy life.
 - (d) In enabling them to know that they should not take recourse to repression and punishment, which adversely affect the mental health of children.
 - (e) In enabling them to observe keenly the behaviour of children. It also assists them in controlling their habits.
 - (f) In showing them the need to shower love and affection on their children.

Limitations of Educational Psychology

Educational psychology provides to the teacher information on certain problems regarding the development of children. Teacher's effectiveness will depend on their own experience

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and approach towards educational problems. Educational psychology deals with the nature of the children and the environment, and both these are unstable. A child may not behave the same way even in the same environment at different times. Educational psychology provides only the guidelines. Its generalizations are not as exact as the generalizations of natural sciences.

To sum up, we may not entirely agree with the tall claim of scottish academic and psychologist James Drever (1873–1950) that: ‘We can hardly settle any essential and vital question in education except in a merely academic way, and without reference to practical problems, independently of the science of psychology’, but we must admit that there is a great truth in it.

4.3 METHODS OF EDUCATIONAL PSYCHOLOGY

Educational psychology employs various methods to improve the teaching-learning process in the classroom. It uses these methods to gather facts about the nature of children, how they learn and how they develop. It employs methods to know how any aspect of a child’s personality, such as, learning, social adjustment or skills, develop from the elementary stage to a complex one. It studies how children pass through several stages of growth and development. As educational psychology is an applied branch of general psychology, it uses methods of general psychology.

In recent years, with the development of technology, researchers have started using new methods of collecting and analysing data. In this context, the use of computers has become a common feature in developed countries. In our country, the use of computers in educational psychology is at its initial stage.

With rapid use of technology in education, psychology and other social sciences, new research strategies are being evolved for conducting research.

The important methods and techniques for collecting data are as under:

- I. Introspection
- II. Observation
- III. Clinical
- IV. Scientific, or experimental
- V. Correlational, or differential
- VI. General statistical
- VII. Projective
- VIII. Sociometry

Each of the above-listed techniques is discussed in detail in the following sections.

I. Introspection

Introspection is composed of two words, *intro* and *aspection*. *Intro* means *within* or *inward* and *aspection* means *looking*. Hence, the word implies self-observation or looking *within* or looking *inward* to experience ‘one’s’ mental state. It is a process of examining one’s mental process of thought, feelings and motives. An individual looks within, observes, analyses and reports his feelings. Let us explain this process with the help of an example. Suppose you are happy and in this state of happiness, you look within yourself. Thus, you are introspecting your mental feelings and examining what is going on in your mind in the state of happiness. Similarly, you may introspect in states of

Check Your Progress

1. What is educational psychology?
2. State any three characteristics of educational psychology.
3. Mention any four ways how educational psychology is helpful for people in the field of education.

anger, fear, and so on. Introspection is also defined as the *notice* that the mind takes of itself. Introspection is the oldest method that was formerly used by philosophers. It was developed by structuralists in psychology who defined psychology as the study of conscious experiences of the individual.

Merits of the Introspection Method

1. It is the most economical method. No apparatus or laboratory is required for its use.
2. This method can be used any time and anywhere.
3. It is the easiest method and is readily available to the individual.
4. Introspection has generated research that gradually led to the development of more objective methods. It is still used in all experimental investigations.
5. It is the only method through which an individual can know his emotions and feelings.
6. American philosopher and psychologist William James has pointed out the importance of this method in the following words: 'Introspective observation is what we have to rely on first and foremost, and always. The word introspection need hardly be defined—it means, of course, looking into our own minds and reporting what we there discover. Everyone agrees that we there discover states of consciousness. So far as I know, the existence of such states has never been doubted by any critic, however skeptical in other respects he may have been.'

Limitations of the Introspection Method

1. In introspection, the mind studies its own working. But the mind cannot study itself. For example, when one is in a state of anger or fear, one is too agitated to study the working of one's mind and when one is able to study one's mind, the state of anger, fear, and the like disappears. It is a futile effort to expect any individual to attend to the working of his mind during an emotional state. As well-known psychologist James S. Ross has observed, 'The observer and the observed are the same, the mind is both the field and the instrument of observation.'
2. Human beings are not static objects, such as chairs or stones. Their mental process is under constant change. So when one attempts to introspect, the state of the mind may change. It is difficult to introspect over psychological experiences that are constantly changing.
3. The data collected by introspection cannot be verified. An individual may not pass through the same mental state again. There is no independent way of checking the data.
4. The data collected by introspection is highly subjective. It carries the risk of being biased and influenced by preconceptions of the individual.
5. There is ample scope for the reporter—the individual who introspects—to lie deliberately and hide the facts from the researcher.
6. Introspection can be done by normal and stable individuals. Mentally unstable human beings cannot introspect.
7. Introspection cannot be done by children. It can only be done by adults.
8. Introspection can be assisted by trained and skilled guides.
9. According to Gestalt psychologists, it does not yield adequate representation of the unitary experience in its totality.

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10. Introspection is generally carried out when a particular state of mind that we wish to study has passed. So it is really *retrospection* that the individual goes through because we study the event after it has taken place.
11. Limitations of introspection can be overcome by practice and training, by remaining alert during introspection and by comparing results obtained by experts. Leading English philosopher and psychologist G.F. Stout observed, 'Introspection to be effective for the advancement of science must, like other modes of observation, be carried on by a number of experts in cooperation.'

II. Observation

Observation is one of the oldest techniques that man has made use of. Even today, we notice farmers feeling the breeze, watching the sky, sun, moon and stars in order to determine what the weather is likely to be and what season is approaching.

In the words of Carter V. Good of the University of Cincinnati, 'Observation deals with the overt behaviour of persons in appropriate situations.' Observation has been defined as 'measurement without instruments'. In education, observation is the most commonly employed method among all measurement techniques.

Merits of the Observation Method

1. Being a record of the actual behaviour of the child, it is more reliable and objective.
2. It is a study of an individual in a natural situation and is, therefore, more useful than a restricted study in a test situation.
3. The method can be used with children of all ages; of course, the younger the child, the easier it is to observe him. This method has been found very useful with shy children.
4. It can be used with little training and almost all teachers can use it. It does not require any special tools or equipment.
5. It can be used in every situation including physical activities, workshops and classroom situations as well.
6. It is adaptable both to the individual as well as groups.

Limitations of the Observation Method

1. Great scope exists for observer's personal prejudice and bias to creep into the analysis.
2. Records may not be written with 100 per cent accuracy as the observation is recorded after the actions. There is also some time lag.
3. The observer may only get a small sample of student behaviour. It is very difficult to observe everything that a student does or says. As far as possible, observations should be made from several events.
4. It reveals the overt and expressed behaviour only and not the behaviour that is within.

Types of Observation

1. Participant Observation

Here the observer plays a double role. He becomes by and large a member of the group under observation and shares the situation as a visiting stranger, an eager learner and an attentive listener.

Merits

- (a) It is more reliable.
- (b) It is very flexible.
- (c) It enables greater degree of probing.
- (d) It discloses the minute and hidden facts.
- (e) Its cost is relatively less.

Demerits

- (a) It is time consuming.
- (b) The observer's presence is likely to modify the behaviour of the subjects under study.
- (c) It becomes more subjective.

2. Non-Participant Observation

This is used with groups, such as infants, children or mentally disabled people. The observer takes a position where he is able to observe in detail the behaviour of the individual under observation. The position of the observer should be least disturbing to the subject under study. Non-participant observation permits the use of recording instruments. It also permits the gathering of larger quantity of data.

3. Structured Observation

Structured observation starts with relatively specific formulations. The observer sets up categories in terms of which he wishes to analyse the problem. He must keep in view:

- (a) A frame of reference
- (b) Time units
- (c) Limits of an act

4. Unstructured Observation

It mainly takes the form of participant observation. The observer takes the role of a member of the group.

III. Clinical Method

It is a method employed to an individual in cases when he/she has a problem. A clinical study is the in-depth study of an individual in all its details. It helps to reveal the underlying causes of misbehaviour by careful observation of an individual. It provides insights into adjustment problems.

The clinical method is based on the truism that each individual is different from another and is, therefore, a unique case. His problem has some definite causes and antecedents lying both within the individual and in his/her environment. The problem does not arise suddenly but has a history behind it. Clinical method employs both methods of diagnosis and treatment, and in doing so, it operates at the level of art as well as of science. The types of problems under investigation are shyness, nervousness, thumb-sucking, speech defects, truancy, phobias, stealing, telling lies, sexual disorders, sex offences and so on.

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Diagnosis of the Problem

Diagnosis of the problem is the first step. It begins with a careful physical examination. Then the case history is prepared to gain insights into the problem. It is followed by a clinical interview and psychological testing of individual's abilities and personality traits.

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Treatment follows on the basis of a hypothesis developed and inferences drawn from the comprehensive diagnosis. It may involve change of environment (school or home). The issue of utmost importance is that the individual must undergo a change. Children can be helped in this regard through play-therapy, psycho-drama, role-playing or behaviour modification techniques that are based on the principle of conditioning.

Clinical approach involves the following steps:

- (i) Preparation of case history
- (ii) Study of the environment
- (iii) Direct observation of the individual during interview or play
- (iv) Psychological examination with the help of certain tests and techniques

IV. Experimental Method

The experimental method is generally regarded as the most sophisticated research method for testing hypotheses. In the words of well-known psychologists W. S. Manro and M. D. Engelst, 'Experimentation is the name given to the type of educational research in which the investigator controls the educative factors to which a group of children is subjected during the period of inquiry and observes the resulting achievement.'

Eminent philosopher J. W. Best describes it as, 'Experimental research is the description and analysis of what will be, or what will occur, under carefully controlled conditions.' Thus, the keywords in experimental research are as follows:

1. What will be
2. What will occur
3. Carefully controlled conditions

According to researcher analyst Festinger, 'The essence of an experiment may be described as observing the effect on a dependent variable of the manipulation of an independent variable.'

Characteristics of an Experiment

An experiment calls for the satisfaction of three basic interrelated conditions, i.e., Control, Randomization and Replication.

1. *Control*: Control is the basic element in experimentation. The influence of extraneous factors that are not included in the hypothesis are prevented from operating and confusing the outcome that is to be appraised. These types of controls are exercised in an experiment:
 - (i) Physical control
 - (ii) Selective control
 - (iii) Statistical control
2. *Randomization*: As it is very difficult to exercise complete control, efforts are made to assign cases in the experiment and control groups randomly.

3. *Replication*: This implies conducting a number of sub-experiments within the framework of an overall experimental design.

Use of Experimentation in Education: Some of the main uses of experimentation in education are as follows:

1. Determining and evaluating the adequacy and effectiveness of educational aims and objectives through the measurement of outcomes
2. Serving as a basis for the formulation, execution and modification of educational policies and programmes
3. Ascertaining the effects of any change in the normal educational programmes and practices

Merits of the Experimental Method

1. Experimental method is the most systematic method of getting reliable data.
2. In this, research is conducted under rigorously controlled conditions. The experimenter can control the application and withdrawal of independent variables.
3. Findings of the experimental method are verifiable by other experimenters under identical conditions.
4. Experimental method provides adequate information about the problem.
5. It provides objective information about the problem.
6. It tests the traditional beliefs and throws new light on them and opens avenues for future progress.
7. It helps to minimize subjective opinions in the analysis.
8. It increases our knowledge of cause-effect relations in the behaviour of the learners and provides guidelines for making teaching-learning effective, interesting and inspirational.
9. It provides innovative ideas for further experimentation.

Limitation of the Experimental Method

1. Psychologists like Thorndike and Skinner conducted experiments on animals like cats and dogs, and deduced principles on the basis of these experiments. This raises the issue that how far is it justifiable to generalize those principles and laws on human beings.
2. Human nature is changing. One may not act exactly in the same manner even in identical situations.
3. Experiments are conducted in an artificially determined pattern of behaviour. In real life, the situation is quite different.
4. Each child is unique. He/she differs from other children in several aspects. This fact hinders objective generalizations.
5. Experimental data do not provide insights into the total behaviour of the learner. For all practical purposes, behaviour is an interaction between the learner and the environments. The experimentalists often omit important factors by their tendency to eliminate and isolate experimental variables or to keep them constant.

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6. Various types of actions of children do not fit into a laboratory setting.
7. Experimental method is time-consuming.
8. Experimental method is costly.
9. Experimental method needs specialized knowledge and, therefore, every teacher cannot be expected to conduct an experiment.
10. Experiments in social sciences are not possible in the same sense as they are in physical sciences.
11. Some religious leaders and other thinkers have raised ethical issues regarding administration of experiments and tests, especially those that encroach upon the privacy of the subjects (individuals).
12. It is not always possible to construct tools that will make accurate measurements of individual differences.
13. In several experiments, it is not possible to manipulate human beings according to the research designs that are theoretically possible.
14. It is not possible to reach certainty in matters of social sciences, including educational psychology.

V. Correlational or Differential Methods

Correlational methods are used to study the subjects as they are, without changing the conditions surrounding them. For instance, various tests are given to the individuals and their results are compared with other performances. In vocational guidance, jobs are matched with the candidates to be employed for those jobs. Correlational methods are also used to study individuals in pairs, for example, twins, siblings, and so on. These methods are also used for comparing groups that are more or less alike.

VI. General Statistical Methods

All methods that make use of statistics fall under this category. As a matter of fact, most of the methods like experimental and correlated methods may be classified under this category, especially when they make use of statistical techniques.

VII. Projective Methods

These methods are called projective because the assumption is that an individual tries to project his feelings on the environments and, thus, reveals his personality.

VIII. Sociometry

The sociometric technique was developed by leading psychiatrist and psychologist or Jacob L. Moreno to determine the degree to which individuals are accepted in a group. It is used to discover the relationships that exist among members of a group. These relationships are found out by asking the following questions to the members:

- (a) With whom would you like to sit?
- (b) With whom would you like to work?

The details of these methods are discussed separately in the last unit of this book.

Check Your Progress

4. List any four methods of collecting data?
5. What is an introspection method?
6. Name the different types of observation.
7. What happens in the clinical method?

4.4 CONCEPT OF LEARNING

Learning occupies an important place in the school programme. In fact, schools are set up for making children learn. All efforts of teachers and parents are devoted to help children learn. Learning is an enriching experience as there is an interaction with the environment. Without learning, all efforts of children as well as of teachers have little meaning. It is generally observed that in the determination of a child's behaviour, there is no process more important than learning. However, psychologists differ on the concept of learning. Several attempts have been made to define learning. The following definitions by well-known research analysts and philosophers give a comprehensive view of learning:

1. **According to R S Woodworth (1945)**, 'Any activity can be called learning so far as it develops the individual (in any respect, good or bad) and makes his behaviour and experiences different from what that would otherwise have been.'
2. **H L Kingsley and R Garry, (1946)** said, 'Learning is the process by which behaviour (in the broader sense) originates or changes through practice and training.'
3. **Gates and Others (1946)** observed, 'Learning is the modification in behaviour to meet environmental requirements.'
4. **F S Freeman (1958)** defined, 'Learning is the process of developing the ability to respond adequately to a situation which may or may not have been properly encountered.'
5. **B L Hilgard (1958)** was of the view, 'Learning is the process by which an activity originates or is changed through reacting to an encountered situation, provided that the characteristics of the change in activity cannot be explained on the basis of native responses, tendencies, maturation or temporary states of the organism (e.g., fatigue or drugs, etc.)'
6. **H Faigan (1958)** believed, 'Learning is a sequence of mental events or conditions leading to changes in the learner. As a sequence of events, the learning process is as follows:
 - (i) The individual has needs and is therefore in a state of readiness to respond. These are antecedent conditions within the learner.
 - (ii) He meets a learning situation or problem. A new interpretation is required because previously learned responses are not adequate for reaching the goal and satisfying his need. He encounters something new or unexpected, and must search for a different response.
 - (iii) He interprets the situation with reference to his goals, and tries a response or responses which seem to satisfy his need. The way he perceives the situation and the response he makes depends both on his "readiness" and on the external conditions of the situation.
 - (iv) If his response leads to devised goals or satisfaction, he will tend to interpret and respond to similar future situations in the same way. If not, he keeps on trying and reinterpreting until consequences are attained. The learning process is this whole sequence!

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Key Phrases Used in the Definitions of Learning

An analysis of the above mentioned definitions would reveal the following key words and phrases in learning:

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- (i) Modification of behaviour
- (ii) Practice for behaviour
- (iii) Training for behaviour
- (iv) Changes in environment
- (v) Motivated individual, i.e., the learner
- (vi) Attainment of a goal
- (vii) Acquisition of habits, knowledge and attitudes
- (viii) New ways of doing things
- (ix) Overcoming obstacles
- (x) Readjusting to new situation
- (xi) Ability to respond
- (xii) Satisfaction of needs through encountering something new
- (xiii) Trying and reinterpreting the situation for the satisfaction of needs
- (xiv) Acquisition of new behaviour
- (xv) Strengthening of old behaviour
- (xvi) Weakening of old behaviour
- (xvii) Satisfaction of motivations by adopting and adjusting behaviour
- (xviii) Overcoming obstacles
- (xix) Changes in the individual through changes in the environment
- (xx) Adopting behaviour to the situation
- (xxi) Permanent modifications in the behaviour
- (xxii) Changes in behaviour as a result of reinforcement
- (xxiii) Changes occurring in behaviour through practice
- (xxiv) Improvement in the efficiency of adjustment through practice
- (xxv) Learning as the synthesis of old and new experiences

It may be stated that learning should enable us to make the best use of the things around us. If a man has not learnt the art of living harmoniously with others, he would be beset with difficulties than the person who has learnt to establish social relations with his fellows. So the acquisition of abilities, which enable us to adjust ourselves in an effective manner in an environment and to control it successfully, is said to be the aim of learning.

4.4.1 Main Characteristics of Learning

Subject experts Yoakman and Simpson enumerated nine general characteristics of learning, which are discussed as follows:

- (i) **Learning is growth:** The word 'growth' is generally associated not only with the body which is growing physically, but with the mental growth of an individual. Through his daily activities, a child grows both mentally and physically. Therefore, we say that learning is growth through experience.

- (ii) **Learning is adjustment:** Learning helps the individual to adjust himself adequately to new situations. Children come across new situations which demand effective solutions. Life is full of experiences, and each experience leaves behind some effects in the mind, which in turn, modify our behaviour.
- (iii) **Learning is experience:** Learning is not mere addition to knowledge and acquisition of facts and skills through drill and repetition. It is the reorganization of experience.
- (iv) **Learning is purposeful:** True learning is based on purpose. Purpose plays a big role in learning. According to renowned psychologist Ryburn, 'This purpose is always connected with the use of some instinctive power, with the use of the energy with which we are endowed with birth.' We do not learn anything and everything that comes in our way, in a haphazard manner. All school activities should be purposeful so that a child feels the real urge for learning.
- (v) **Learning is intelligence:** Meaningless efforts do not produce permanent result as work done mechanically is without any soul. When a child learns something unintelligently, he is likely to forget it soon. He does not assimilate but simply memorizes. Only efforts made intelligently have lasting effects.
- (vi) **Learning is activity:** Learning does not take place without a purpose and self-activity. In the teaching-learning process, the activity of the learner counts more than the activity of the teacher. This is the main principle of learning and it has been recommended by all modern educationists. In fact, all progressive methods of education, such as the Dalton, the Project, the Montessori and the Basic, are based on this.
- (vii) **Learning is both individual and social:** Learning is more than an individual activity; it is a social activity too. An individual's mind is affected by the group mind consciously as well as unconsciously, as he is influenced by his friends, relatives, classmates, parents, among others, and learns their ideas, feelings and notions. Social agencies, such as the family, church, playmates, social networking including media, have a tremendous influence on a child's mind.
- (viii) **Learning is the product of the environment:** Environment plays an important role in the growth and development of an individual. A conducive healthy and educative environment should be provided for effective learning.
- (ix) **True learning affects the conduct of the learner:** There is a change in the mental structure of the learner after every experience.

When and Where Learning Takes Place

Learning is not limited to school only; it begins long before and may continue long after school days. Thus, the ability to speak one's mother tongue begins in early infancy. On the other hand, the ability to practise a profession, such as that of a doctor, is acquired after leaving the medical college. Similarly, one learns the art of walking before one goes to school. The behaviour towards one's family is learnt at home, but to behave as a member of society is learnt in school.

4.4.2 Goals of Learning

Goals of learning can be classified in three broad categories: (i) Acquisition of knowledge, (ii) Acquisition of skills, and (iii) Acquisition of attitudes and ideals.

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(i) **Acquisition of knowledge** includes Perception, Conception and Associative learning.

(a) *Perception*: Perception refers to the acquisition of specific knowledge about objects or events, directly stimulating the senses at any particular moment. An object comes before our sense organs. We get its sensation and attach meaning to it on the basis of our past experiences. This is called perception and the type of learning is known as perceptual learning. An infant sees a woman. In the past, the woman had fed him. On the basis of that experience, he comprehends that the woman is his nurse or mother.

(b) *Conception*: Conception means the acquisition of organized knowledge in the form of general ideas or concepts. Perception refers to an individual or specific situation and conception to general or universal situation. The child gets the perception of an apple, banana, orange, and so on, and is able to locate certain general qualities in them. On the basis of these qualities, he forms a conception of fruits.

(c) *Associative learning*: Associative learning corresponds to memory, both as the deliberate recall and recognition, past experience and a habit or automatic memory due to association. Associative learning is fundamental to all other learning.

(ii) **Acquisition of skills**: Under this, we include the sensory-motor processes—writing, reading, musical performance, language acquisition in its vocal aspect, art, drawing, handwork, and so on.

(iii) **Acquisition of attitudes and ideals**: This is present in the affective or feeling element. An ideal is a concept which is attached with some worthwhile value.

Classroom Educational Implications of Learning

Educational implications of classroom learning may be summarized as under:

1. *Who is to learn?* The child is to learn and, therefore, his age, abilities, aptitudes and interests may be taken note of by all those who are responsible for the child's learning.
2. *From whom to learn?* Learning is from the teacher. Therefore, a teacher must present good models of teaching and learning.
3. *Why to learn?* Learning is for individual good as well as for the good of the society.
4. *What to learn?* Learning is not merely in terms of the traditional 'Three R's', i.e., reading, writing and arithmetic but in terms of 'Seven R's', i.e., reading, writing, arithmetic, rights, responsibilities and their relationships and recreation.
5. *How to learn?* It involves various methods of learning, for instance, learning through rote memory, learning through imitation, learning through insight, and so on.
6. *When to learn?* This is concerned with motivational situations for the learner.
7. *Where to learn?* Learning takes place in the classroom, on the playfield, in the workshop, in the neighbourhood, and so on. School is not the only place of learning.

4.4.3 Kinds and Types of Learning

Learning has been classified in a number of ways into various categories. It is very difficult to divide learning into clear cut categories because one category overlaps the other. Some of the important categories are as follows:

1. **Deliberate or conscious learning:** This includes learning of a skill or subject, which can be of two types:
 - (i) *Primary learning:* This includes learning of facts, principles and theories, which form the main basis of lessons.
 - (ii) *Associated learning:* This consists of learning of facts and other objective materials because they are related to primary learning and are logically brought into the lesson.
2. **Unconscious or concomitant learning:** This includes learning of likes and dislikes, attitudes, and so on. This type of learning is as important as conscious learning.
3. **Development learning:** Depending on the type of development, learning is classified as follows:
 - (i) Academic learning
 - (ii) Emotional learning
 - (iii) Intellectual learning
 - (iv) Moral learning
 - (v) Motor learning
 - (vi) Sensory learning
 - (vii) Social learning
4. **General concept of learning:** Knowledge and skills, attitude and value formation, and so on, fall under the category of general concept of learning.
5. **Hierarchical learning:** American educational psychologist Robert M. Gagne (1970) classified learning into eight categories:
 - (i) **Signal learning:** It is usually termed as classical conditioning which was developed by a Russian physiologist, Pavlov. In classical conditioning, unconditioned stimulus (food) and conditioned stimulus (sound of the bell) were paired together and presented to a dog a number of times. The result obtained was that when conditioned stimulus, i.e., CS (the sound of the bell) was presented alone, it elicited saliva from the mouth of the dog. This modification of behaviour, which caused salivation to the sound of the bell, was called conditioning. (More details on this are given while discussing the theory of classical conditioning.)
 - (ii) **Stimulus-Response (S-R) learning:** American psychologist E. Thorndike initiated the study of instrumental conditioning with puzzle box experiments on cats. American psychologist B. F. Skinner conducted a series of experiments on animals and prepared ground for the application of those principles in human learning.
 - (iii) **Chain learning:** Chain learning consists of motor and verbal chaining. *Verbal chaining* is connecting together, in a sequence, two or more previously learnt stimulus responses (S's - R's), in which the first member or element of the sequence seems firmly tied with the second. Some examples are:

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a boy and a girl, daddy and mummy, horse and buggy, among others. *Motor chaining* may be illustrated with the stimulus response connections in the process of unlocking a door: (a) Key in hand, (b) Facing the lock, (c) Checking the side of the key to be inserted, (d) Inserting the key into the lock until the end of the lock is reached, and finally, (e) Pushing the door to open it. However, it must be remembered that for establishing a chain, one must be capable of performing the individual links.

(iv) **Verbal associate learning:** Verbal associate learning can be explained by the following example: A child is shown an object, say a doll. The next time he sees this particular object, he will be able to say that it is a 'doll'. Thus, two chains are involved here:

(a) Observing response (Ss-R) connection that connects the appearance of the object and distinguishes it from other objects, .

(b) Ss-R connection that stimulates the child himself to say 'doll'.

S	⇒	R		S	⇒	R
Object		Observing		Doll		Doll

(v) **Discrimination:** When a behaviour shows a specificity of response to one given stimulus to the exclusion of others, we may say that discrimination has taken place. From the very beginning, an infant learns to discriminate between a feeding bottle and a simple bottle, between walking and talking, and so on. Gradually, the child learns to discriminate more objects and ideas. Discrimination involves higher mental processes. In discrimination, the emphasis is not on the stimulus side but on the response side and in differentiation.

(vi) **Concept learning:** In concept learning, we deal with a set of objects as the stimuli. We form concepts by finding properties which a set of objects have/share in common. Thereafter, we learn generalizations within groups and gradually learn to discriminate between them. First, we learn about a dog, then various breeds of dogs and then cats, and so on.

(vii) **Learning of principles:** Learning of principles depends on learning of concept formation and other forms of learning. Principles denote regular relationship among two or more concepts.

(viii) **Problem-solving:** Problem-solving comes at the higher stage in the hierarchy of learning process. In fact, all the earlier steps lead to problem-solving.

4.4.4 Factors Affecting Learning

There are essentially four interrelated factors which affect learning. These are as follows:

1. Psyche of the Student

The student is the subject who has to learn. It is the student's state of being which is most important to study. This state is affected by the student's will to learn, his or her ability or disability, if any, which assists or prevents learning, memory or power of retention, attention and capacity to recapitulate. These are traits of the child which affect learning. The barriers of language caused by numerous movements and migrations in today's volatile environment can have a significant adverse affect on learning if there are frequent changes in language or medium of instruction.

2. School Atmosphere

The school includes the following three important contributors to the learning process:

(i) Overall School Environment

Meaning of school ethos: School ethos implies moral nature or environment of the school, its guiding principles, its distinguishing character and its sentiment.

The concept of an ideal ethos for a school has been beautifully summed up by well-known educationist Dr S. Balakrishna Joshi as, 'A school is not a mere brick and mortar structure housing a miscellany of pupils and teachers; a school is not a market place where a heterogeneous crowd gathers with diverse objects; a school is not a rigorous reformatory where juvenile suspects are kept under vigilant watch. A school is a spiritual organism with a distinctive personality of its own; a school is a vibrant community centre, radiating life and energy all round; a school is a wonderful edifice, resting on the foundation of goodwill—goodwill of the public, goodwill of the parents; goodwill of the pupils. In a word, a well conducted school is a happy home, a sacred shrine, a social centre, a state in miniature and bewitching Vrindavan, all beautifully blended into a synthetic structure.'

It is not without reason that the Education Commission, 1964–66, observed: 'The destiny of India is now being shaped in its classrooms. On the quality and number of persons coming out of schools and colleges will depend our success in the great adventure of national reconstruction.'

(ii) Class Environment

Meaning of Classroom Climate: Classroom climate implies classroom environment in which change of behaviour or learning takes place through interaction in the group. It consists of students of various shades and the teacher who is the leader of the group. The mental health of the group is an important factor in the process of learning. As a leader, the teacher is expected to create a democratic environment. His democratic behaviour in the classroom can steer constructive and inspirational individuals as well as group activities in the right direction.

General Suggestions for Creating Democratic Climate: Apart from the above mentioned factors for creating a democratic classroom climate, the following suggestions should prove very useful:

1. It would be desirable for a teacher to throw some light on the qualities of leadership so that students choose their leaders wisely and the teacher is able to influence the class through its leaders. However, it must be stressed that a teacher must remain neutral in the selection of leaders.
2. The behaviour of the leader of the group is imitated by the members of the group.
3. Suggestion plays a big role in influencing the group behaviour. The suggestions put forward by the leader of the group are readily accepted.
4. The recent studies have made it clear that for bringing about changes in the individual, we must bring about changes in the characteristics of the group. The teachers, therefore, should adopt appropriate group methods in the class and through these influence the attitudes of the members of the group. Group training is better than individual training.

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(iii) The Teacher

Teacher's Personality: It has been rightly observed. 'While books can teach, only personality can educate.' A good personality includes:

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- (a) Impressive Appearance
- (b) Modulated Voice
- (c) High Character
- (d) Effective Power of Communication

Personality of the child in the desired dimension cannot be developed if the teacher who is the model to be followed lacks personality. Children are imitative and suggestive by nature. They imitate the dress, voice, habits and manners of their teachers. On several occasions, the likes and dislikes of teachers become the likes and dislikes of their students. Children who are in the plastic period of their lives are easily influenced by their teachers. 'Man, know thyself' is the advice given by sage Yajnavalkya in India and the philosopher Socrates of Greece. The teachers must undergo a spiritual inner training. They should try to find out their own shortcomings and remove them.

Teachers should practice the following:

- (a) *Dynamic Methods of Teaching:* The Secondary Education Commission (1952–53) has very rightly observed, 'Every teacher and educationist of experience knows that even the best curriculum and the most perfect syllabus remains dead unless quickened into life by the right methods of teaching and the right kind of teachers.'

Some specific group techniques which could be used for the improvement of the group are as follows:

- (i) Buzz session, in which a small group of five or six students participate, is organized for purposes of stimulating discussion.
 - (ii) Role playing, in which problems of handling a situation are dramatized for the benefit of the group.
 - (iii) Brainstorming, in which a group is organized for stimulating discussion.
 - (iv) Catharsis, in which a planned group expression of problems of concern to the group is provided.
 - (v) Recreational experiences, in which opportunities are provided for participation in dramatics, picnics, parties, and so on, to improve morale.
- (b) *Effective interpersonal communication:* Good teaching is interpersonal communication. Teaching is a two-way communication. As the name indicates, interpersonal communication is the presence of the facility to seek reactions, information, and so on. One way communication, i.e., telling or lecturing by the teacher, denies the facility to the learners to seek clarification, confirmation, and so on. The learners do not get the opportunity to develop interpersonal relationships. Interpersonal communication has a built-in system of feedback. It ensures that further information and clarification are provided wherever possible. The receiver or the learner gets an opportunity to understand the message or the content of the communication.

Healthy interpersonal communication is the sound basis of sound instruction or teaching.

- (c) *Ego-involvement*: The personality of the child should be given due recognition. Well-known educationist Emerson has observed, 'The secret of education lies in respecting the pupil.'
- (d) *Constructive and creative discipline*: The teacher should have a sympathetic but firm attitude towards his charges.
- (e) *Learning combined with creative humour and appropriate laughter*: An experienced teacher once observed. 'I consider a day's teaching-learning wasted, if we do not have a hearty laugh.'
- (f) *Teacher as a guide*: Eminent philosopher and nationalist Sri Aurobindo writes in the regard, 'The first principle of true teaching is that nothing can be taught. The teacher is not an instructor or a taskmaster, he is a helper and a guide. His business is to suggest and not to impose. He does not impart knowledge to the pupil: he shows him how to acquire knowledge for himself.'

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3. The Home Environment

The environment at home is the next important factor which affects learning. Stressed or disturbed atmosphere, family discords family feuds and similar tension-inducing situations at the home have a serious negative impact on the learning process as they cause anxiety, divert attention, dilute focus and disrupt learning. The education level of parents, the time and energy they devote towards the child and the assistance they provide have a direct effect on the learning process. The home and the neighbourhood where the child spends the after-school hours can have both a positive and the negative affect on learning. A healthy atmosphere around the home, the general health pattern within the home, sickness and disease—all such things can affect concentration and, ultimately, learning.

4. Socio-Economic Factor

This is another factor which comes into play in the modern world which impacts learning. Students come from various backgrounds. Some are poor, while others come from affluent households. Students from affluent backgrounds will most likely have more educational support and resources to help them through school and college. Often, these neighborhoods have more tutoring support, after-school activities and bookshops than middle class or poor neighborhoods. The availability of new technology affects faster access to knowledge and resources and, thus, has an impact on learning. Therefore, economic status and environment makes a lot of difference to the overall learning process.

4.4.5 Phases of Learning

Figure 4.1 shows the processes or different phases of learning. Obviously, the learning sequence depends upon what is initially attended to by the learner. All signals could not be received. Our perception is selective and dependent on motivation, on prior knowledge and on features of the external stimuli, like intensity and suddenness. The first process illustrates one act of learning. The second adds the phase of transfer and reinforcement which link up bits of learning into systems. All these processes can happen naturally.

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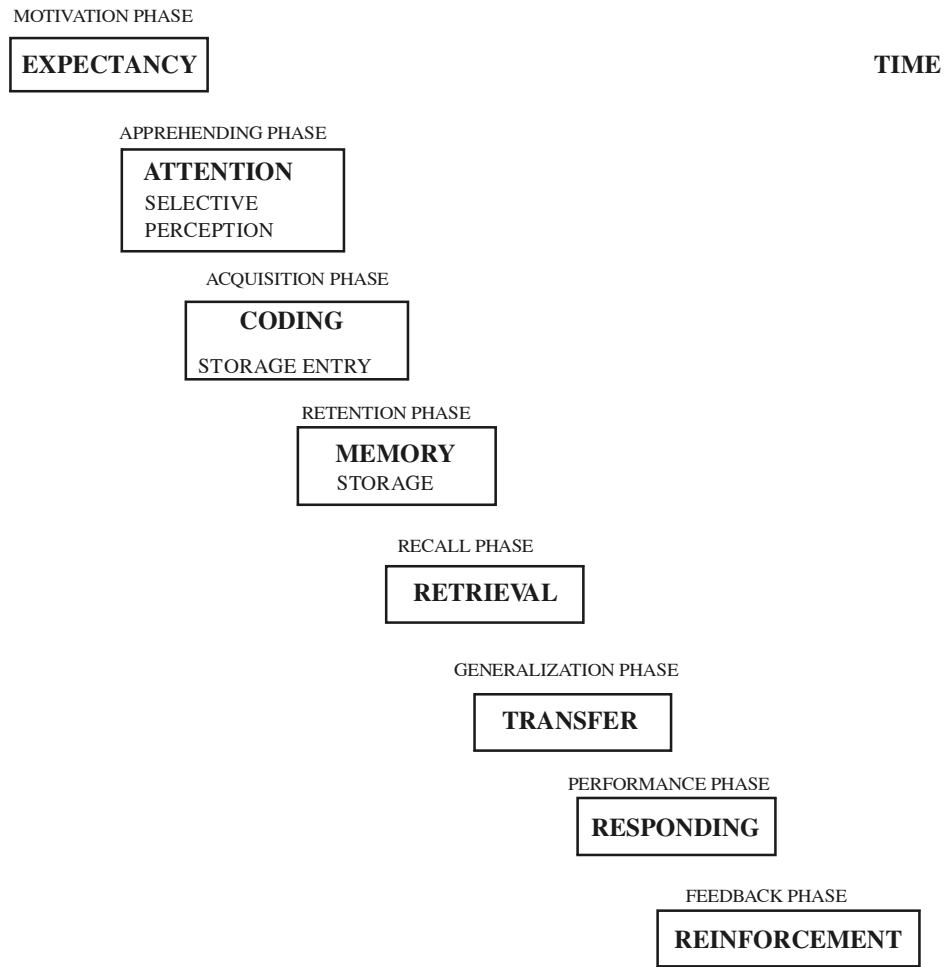


Fig. 4.1 Phases of an Act of Learning and the Process Associated with Them

According to Gagne, three aspects of teaching can benefit from such knowledge: first, the planning of courses, curricula and lessons; second, the conduct of instruction; and third, the assessment of what has been learnt. Gagne observed, ‘When teachers verify their activities against the standards of learning theory, they are accomplishing two highly desirable things. First, they are avoiding the grossly inappropriate actions which although seemingly desirable on other grounds, nevertheless, fail to promote learning in students. And second, they are adopting and maintaining attitudes which support learning as the central purpose of their activities. In the face of many potential distractions in the practice of teaching, the teacher keeps student’s learning as a primary focus of concern.’

4.5 LAWS OF LEARNING

What does the procedure of learning comprise? How does learning help an individual through a set of facts and figures, skills, habits, interests, attitudes and similar other things in life? Such questions have always been a subject of enquiry and investigation for psychologists, and as a result, a number of theories have come into existence. These theories may be broadly classified under two major heads:

- (i) Connectionist or behaviourist theories
- (ii) Cognitive theories

Check Your Progress

8. Mention any five characteristics of learning.

9. What factors affect learning?

Connectionist or behaviourist theories belong to school of behaviourism. They interpret learning in terms of connection or association between stimulus and response. Under this category, we may include theories, such as Thorndike's theory of trial and error learning, Guthrie's continuity theory of learning, Hull's drive reduction theory of learning, classical and operant conditioning, and so on.

Cognitive theories, in a different way, belong to the school of *Gestalt* psychology and cognitive psychology. In place of a purely mechanical or instrumental approach, these theories emphasize the role of purpose, insight, understanding, reasoning, memory and other cognitive factors in the process of learning. Under this category, theories including the theory of insightful learning, Lewin's field theory of learning, Tolman's sign learning, and so on, may be included.

Let us now discuss these behaviourist and cognitive theories of learning.

4.5.1 Theory of Connectionism

E. L. Thorndike (1874–1949) was the first psychologist who introduced the concept of reward in learning. Earlier psychologists had made systematic observations of animals but Thorndike was the first to study the subject of learning systematically, using standardized procedures and apparatus.

He is considered the pioneer of Connectionism theory. In this theory, emphasis is laid on the control of the consequences that follow a response. Responses which are followed by satisfaction or pleasure are reinforced and have a higher probability of being repeated in the future. All learning, according to Thorndike, is the formation of bonds or connections between Stimulus and Response (S-R). The process of forming connections depends on a number of variables which operate in the environment and the organism. To prove his theory, he conducted a series of experiments on a cat confined to a puzzle box. He formulated three basic laws and five supplementary principles of learning on the basis of his study of the cat's behaviour during the puzzle box experiment.

The puzzle box experiment

A hungry cat was confined to a puzzle box and a dish of food was kept outside the puzzle box. The cat needed to pull a lever to come out of the box. The cat, inside the box, made several random movements, such as jumping, clawing and running, to get out of the box. At last, it succeeded in locating the lever and pulling it. The door of the puzzle box opened, the cat came out and ate the food.

Thorndike repeated this experiment with the cat many times. Initially, the cat again displayed frantic behaviour but it soon succeeded in pulling the lever. Over a series of successive trials, the cat became increasingly efficient in getting out of the box. Thorndike's cat showed slow, gradual but continuous improvement in performance over successive trials. He concluded that the learning of the cat in the puzzle box can be explained in terms of formations of direct connection between the stimulus and the response.

4.5.2 Thorndike's Laws of Learning

Thorndike propounded the following laws of learning based on his theoretical notions about the learning process:

(i) The law of readiness

When any unit of transmission is ready for transmitting, it gets its satisfaction by transmitting. When any unit that transmits is not ready to transmit, it will not transmit

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satisfactorily. This law is indicative of the learner's state to participate in the learning process. **Readiness**, according to Thorndike, is preparation for action. It is essential for learning. The learning of a child is rapid if he is prepared to learn. He displays effectiveness along with a high level of satisfaction in comparison to the time when he is not inclined to learn. This shows us not to force the child to learn if he is not ready and not to miss any opportunity of providing learning experiences, if the child is prepared to learn. The right moments concerning the learning situation and the learner's mental condition should be recognized. The teacher should make maximum use of this knowledge. The teacher should also make an attempt to motivate the students by simulating their attention, interest and curiosity.

(ii) The law of effect

In the words of Thorndike,

'When modifiable connection between stimulus and response is made and is accompanied or followed by a satisfying state of affairs, that connection's strength is increased. When made and accompanied or followed by an annoying state of affairs, its strength is decreased.'

In other words, learning can be referred to as proper, when the outcome is satisfactory and it contains pleasure for the learner. In the situation when the child fails to achieve the objective of learning or is not satisfied, the development of learning is interrupted. Every pleasing occurrence has an impact that lasts long and this impact is retained in the mind for a long time. On the other hand, experiences that are not pleasant are retained only for a short while. Therefore, satisfaction and dissatisfaction, pleasure or displeasure resulting from a learning experience decides the degree of its effectiveness.

This law emphasizes the role of rewards and punishment in the process of learning. Getting a reward in return for some learning motivates and encourages the child to proceed with increased intensity and enthusiasm. On the other hand, punishment of any kind discourages him and creates an aversion for that learning.

(iii) Revised law of effect

Based upon his later researches, Thorndike, after 1930, realized that his law of effect was not correct. He found that while a pleasant or satisfying situation resulted in the strengthening of the connection between stimulus and response, an unpleasant or annoying situation did not necessarily decrease the strength of this connection. From this, he concluded that while reinforcements in the form of reward or incentive increase the strength of the S-R connection, unpleasant experiences in the form of pain or punishment do not necessarily weaken it. Thorndike's view regarding the effectiveness of negative measures like punishment in the breaking of undesirable habits and behaviour modification revolutionized the task of rearing and education of children.

The teacher can use this law in the classroom learning-teaching situation in the following way:

1. The classroom experiences should be satisfactory and pleasant. The student must enjoy the lessons.
2. Learning experiences, including activities, must be meaningful and relevant in terms of the personal life of the learners.
3. Activities must be arranged in increasing order of difficulty to ensure that there are few, if any, fallbacks in the progress of the student.

4. There should be ample provision for guidance, praise and encouragement so that the student derives pleasure and satisfaction from learning.

(iv) The law of exercise

This law has two sub-parts: the law of use and the law of disuse which may be stated as follows:

As generally observed, the law of use means making a connection strong with the help of practice and the law of disuse means to make a connection weak or forgetting it when its practice stops. It can be said in short, that the law of exercise as a whole emphasizes the need for repetition.

(v) Revised law of exercise

After 1930, Thorndike revised not only the law of effect but also the law of exercise. Further work and experiments on the law of exercise demonstrated that both the laws of use and disuse do not work as effectively as propounded by him earlier. He later held that use in the shape of mere repetition does not result in effective strengthening of the connection, nor does the disuse or lack of practice result in the total weakening of the connection. Mechanical use or disuse, therefore, does not necessarily lead to effective learning or total forgetting. Thorndike may, thus, be said to have discarded the law of use and disuse after 1930.

All these three laws, namely the law of readiness, the law of effect and the law of exercise are significant in many kinds of learning in life. The laws may be applied to the following proverbs and maxims: 'You can lead a horse to the water but you cannot make it drink.' 'Nothing succeeds like success.' 'Practice makes a man perfect'.

Further, Thorndike's idea of connectionism led to the enunciation of the following important laws:

The teacher can use this law in the classroom learning-teaching situation in the following way:

1. More opportunities should be given to the students to apply and repeat the knowledge they get in the classroom.
2. To maintain the connections for a longer period, review of the learning material is necessary.
3. Reinforcement exercises strengthen the bond between S-R. These exercises play an important role in elementary classes in the memorization of multiplication tables, alphabets, and meaning and spellings of words. Thorndike believed firmly in the power of reinforcement exercises and recommended it especially for younger children.

(vi) Law of multiple response or varied reactions

This law implies that when a person comes across new circumstances, he/she exhibits different types of responses. He responds in a variety of ways trying different options before he arrives at the right option.

(vii) Law of attitude

Learning is guided by a total attitude or behaviour of the organism. The learner exhibits correct performance of the task if he has a positive attitude towards the task.

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(viii) Law of analogy

An individual's response to a new scenario is based on his/her responses in similar situations during the past, i.e., he makes responses by comparison or analogy.

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The law of analogy propounded by Thorndike led to his famous 'identical elements theory' of the transfer of learning or training, which states that transfer from one situation of learning to another depends upon the extent and number of elements or components that are common to both situations. It also matches the concept of generalization, according to which the similarity of the learning situation or elements increases the likelihood of similar responses.

(ix) Law of associative shifting

This law states that, 'Any response may be elicited from the learner of which he is capable, in associating with any situation to which he is sensitive.' In other words, the possibility of any response can be attributed to any stimulus. Thorndike clarified his stand through an experiment in which he demonstrated how a cat can be trained to stand up on command. To begin a number of trials, a stage would come when it would not be necessary to show the fish. The oral signal or command alone will then evoke the response. The idea, elaborated by this law, created a new theory of learning, which is known as the theory of conditioning.

Thorndike's contribution in the field of learning

Thorndike's theory of trial and error is of great significance in the field of education. It explains the process of learning among animals and human beings on the basis of actual experiments. Not only human learning but animal learning also follows the path of trial and error before arriving at the correct solution. Even discoveries and inventions in the various fields of knowledge are the result of the trial and error process.

For example, Archimedes was confronted with a problem set by his emperor who ordained that he would be beheaded if he failed to find the solution to a problem. He experienced a mental 'block' and could not think of any solution. The problem was difficult. He continued experimenting and underwent numerous attempts (trials) to solve the problem. One day, while having a bath, he accidentally found the solution, which led to the formulation of the law of floating bodies.

Excessive use of the method of trial and error, without the development of a logical line of thought should not, however, be encouraged under any circumstances. We cannot reduce human learning to a mechanical and random process as advocated by this theory. It must be supported by reason, understanding and insight. Trials and practice coupled with insight will make the process of learning more effective than either of the methods adopted singly.

Thorndike's laws of learning carry some useful implications. These are as follows:

- If one wants to learn something, one should prepare oneself for it by first understanding its importance with the help of an instructor or a teacher. In addition to this, in order to teach effectively, one must try to prepare the learner by bringing the mechanism of motivation into play.
- In order to learn or teach, we must first identify the aspects that are to be remembered as well as those that may be forgotten. After this, we may try to strengthen the links or connections between the stimuli and responses or those

things that are to be remembered through repetition, drill and reward. In order to forget, the connections should be weakened through disuse and unpleasant results.

- Any information being taught or learnt at any one time should be linked with past experiences with learning on the one hand and future learning on the other, in order to benefit from the mechanism of association, connection or bonds in the process of learning.
- The learner should try to see the similarities and dissimilarities between different kinds of responses to stimuli and by comparison and contrast try to apply the learning from one situation to another similar situation.
- The learner should be encouraged to perform the task independently. He must try various solutions of the problem before arriving at the correct one. However, in every, case he/she should be careful not to waste time and energy by proceeding blindly and repeating errors.

In short, Thorndike's theory of trial and error learning and his laws of learning have contributed significantly to the field of learning. It has made learning purposeful and goal-directed and has emphasized the importance of motivation. It has also given an impetus to drill and practice.

4.5.3 Theory of Classical Conditioning

While studying the functioning of the digestive system, a Russian psychologist named Ivan Pavlov (1849–1936) encountered an unforeseen problem: the dogs in his experiment salivated not only upon actually eating but also when they saw the food, noticed the man who usually brought it, or even heard his footsteps. Pavlov began to study the phenomenon, which he termed as 'conditioning'. Due to the type of conditioning emphasized by other psychologists at a later stage, it has been renamed as classical conditioning. To understand the nature of the process of conditioning, let us discuss the type of experiments performed by Pavlov.

In one experiment, Pavlov used a dog, which was made to starve for a few days and he was tied to the experimental table. This table had a certain mechanically controlled device attached to it. The dog was kept in comfort and away from any distraction. The observer also hid himself from the dog and used mirrors to observe the experiment. The dog was fed with the help of an automated mechanism. Pavlov also arranged for a bell to ring every time food was presented to the dog. Whenever the food was put across to the dog and the bell began to ring, the dog automatically began to secrete saliva from his mouth. The action of giving food to the dog along with the ringing of the bell was repeated many times. The amount of secretion of the saliva by the dog was measured.

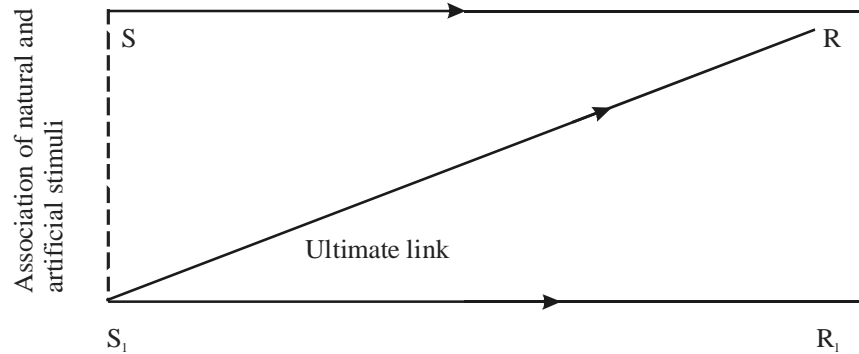
After a number of repetitions, Pavlov stopped giving food to the dog. However, he continued to ring the bell. Under these circumstances too, the amount of saliva that the dog secreted was measured and a note was made of it. The findings pointed to the fact that even when the food was not present (natural stimulus), the sound of the bell (an artificial stimulus) resulted in the dog secreting saliva (natural response). A diagrammatic representation of the experiment is presented in Figure 4.2.

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Natural or unconditional stimulus (presentation of food)

Natural or unconditional response (salivation)

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Artificial or conditional

(General alertness)

Stimulus (Ringing of the bell)

Fig. 4.2 Theory of Classical Conditioning

The above experiment, thus, brings to light four essential elements of the conditioning process. The first element is a natural stimulus, technically known as unconditioned stimulus (US), i.e., food. It results in a natural response called the unconditioned response (UR). This response constitutes the second element.

The third element is the artificial stimulus, i.e., the ringing of the bell, which is technically known as a conditioned stimulus (CS). It is substituted for the natural stimulus (food). To begin with, the conditioned stimulus does not evoke the desired response, i.e., the conditioned response (CR). The fourth element is the chain of the conditioning process. However, as a result of conditioning, one learns to produce behaviour in the form of a conditioned response to a conditioned stimulus.

The theory of conditioning as advocated by Pavlov, thus, considers learning as a habit that is formed and based on the principle of association and substitution. It is simply a stimulus-response type of learning, where natural stimulus like food, water, sexual contact, and so on, is replaced by an artificial stimulus like the sound of the bell, sight of light of a definite colour, and so on, which can give rise to a natural response. In cases where both, the artificial or natural stimulus (ringing of the bell) and the natural stimulus (food) come together frequently, the dog gets trained or familiar in responding to this situation. A perfect relation is established between the different types of stimuli that work in synchronization. Consequently, after a while, an artificial stimulus replaces or substitutes the natural stimulus. This artificial stimulus has the ability to evoke a natural response.

John Watson and the Theory of Conditioning

John Watson (1878–1958), the father of behaviourism, supported Pavlov’s ideas on conditioned responses. Through his experiments, Watson tried to demonstrate the role of conditioning in producing as well as eliminating emotional responses, such as fear.

In one of his experiments, Watson used an 11-month old child named Albert as his subject. He gave the baby a rabbit to play with. The baby started to develop a

liking towards the rabbit and was happy to feel its fur. He carefully observed the pleasant responses of the baby. After a while, whenever the baby touched the rabbit, it emitted a loud sound to scare the baby. The loud noise was repeated every time he tried to touch the rabbit, and this gave rise to a reaction influenced by fear. As a result of this, the rabbit became an object of fear for the baby, even when no loud noise was emitted when it touched the rabbit. This is how the baby became conditioned, developing a feeling of fear towards the rabbit.

In another experiment, a child named Peter who was afraid of rabbits was used as a subject. At first, the rabbit was placed at a distance from the boy so that it would not pose a threat, but gradually on each successive day, the distance was reduced. Eventually, the rabbit was placed on the table where Peter was eating and then on his lap. Having associated the rabbit with the pleasure of eating, the child lost his fear and began to touch its fur and play with it. Thus, through a simple treatment of conditioning, the child learned not to fear the rabbit. It is a learning process, whereby an artificial or conditioned stimulus has the ability to function similar to a natural stimulus, when both natural and artificial stimuli are presented together. This is the type of learning where association has a major role to play because the individual responds to an artificial stimulus as he tends to link it with the natural stimulus.

The **conditioning theory of learning** put forward by Watson and Pavlov actually involves the conditioning of respondent behaviour through a process of stimulus association and substitution. Here the learner's response becomes so conditioned by repeating the same behaviour or responding in the same way to similar situations that he no longer needs the natural stimuli to evoke the related natural response. Consequently, the new substituted stimulus exhibits a behaviour, which is similar to that of the original stimulus and is able to evoke the desired response.

Principles of classical conditioning

The theory of classical conditioning emphasized by Pavlov and Watson gave birth to a number of important concepts and principles in the field of learning that are as follows:

- (i) **Extinction:** It was noted by Pavlov that if the conditioned stimulus (ringing of the bell) is presented alone a number of times without the food, the magnitude of the conditioned response of salivation begins to decrease. This process in which conditioned response disappears gradually, or S-R association is disconnected is known as **extinction**.
- (ii) **Spontaneous recovery:** It was also discovered by Pavlov that after extinction, when a conditioned response is no longer evident, the behaviour often reappears spontaneously but at a reduced intensity. This phenomenon—the reappearance of an apparently extinguished conditioned response (CR) after an interval in which the pairing of conditioned stimulus (CS) and unconditioned stimulus (US) has not been repeated—is called spontaneous recovery. The process of spontaneous recovery shows that somehow, learning is suppressed rather than forgotten. As time passes, the suppression may become so strong that there would, ultimately be no further possibility of spontaneous recovery.
- (iii) **Stimulus generalization:** Pavlov's dog exhibited accustomed reaction (salivation) not when he saw food but when he reacted to every stimulus like the ringing of the bell, emergence of a source of light, sound of the footsteps of the feeder, and so on, anything related to its feeding. Similarly, Watson's boy Albert showed fear not only of touching a rabbit but also of the mere sight of a rabbit, a white fur coat

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and even Santa Class whiskers. Responding to the stimuli in such a generalized way was termed as stimulus generalization with reference to a particular stage of learning behaviour in which an individual is once conditioned to respond to a specific or an instance of similar nature.

- (iv) **Stimulus discrimination:** Stimulus discrimination is exactly the reverse of stimulus generalization. Here, in sharp contrast to responding in a usual fashion, the subject learns to react differently in different situations. For example, the dog may be made to salivate only at the sight of the green light and not of the red or any other light. Going further, the salivation might be elicited at the sight of a particular intensity of light or brightness of the green light. In this way, by going through the mechanism of stimulus discrimination one gets to learn how to reach the correct and appropriate stimulus, out of a number of stimuli and to distinguish and differentiate one from the other out of a number of stimuli that are available in our surroundings.

Implications of classical conditioning

In our day to day life, we are usually exposed to simple classical conditioning. Fear, love and hatred towards an object, phenomenon or event are created through conditioning. Let us take the case of a father, who, on coming home from office, always rebukes and punishes his child without caring to know the basic reasons that may condition his child to fear him. The child may further develop anxiety reactions at the time of his return to home. The child may further develop a feeling of hatred towards his father or even discontent and a hostile attitude towards his home. Similarly, a teacher with his defective methods of teaching or improper behaviour may condition a child to develop distaste and hatred toward him, the subject he teaches and even the school environment. On the contrary, affection, a loving attitude and sympathetic treatment given to the child by parents at home or by teachers at school may produce a desirable impact on him through the process of conditioning.

Most of our learning is associated with the process of conditioning from the beginning. A child learns to call his father 'daddy' and his mother 'mummy' through the process of conditioning, i.e., stimulus-response attribute the name of daddy to all adult males and mummy to all adult females. Gradually, he comes to the stage of stimulus discrimination and then learns to discriminate and recognize different names of different persons, animals and objects. This phenomenon of stimulus generalization and discrimination goes on up to quite a later stage in our life. Often we meet a person and dislike him or her at first sight merely because that individual reminds us of someone else we do not like. Similarly, many people do not like to mix with people belonging to another faith, religion or caste and often develop a feeling of hatred and animosity towards them even if they have not directly had any unpleasant experiences.

What is termed as abnormality in one's behaviour may be, to a great extent, taken as learning. This learned pattern of one's behaviour is acquired through conditioning. For example, a child may be conditioned to develop fear or dislike of dogs. He may become so frightened of dogs after being bitten by one that he may become reluctant to venture out alone. In a more complex case, a young woman who has had several unfortunate encounters with adult males may become so conscious in the presence of any adult male that she may be unable to have any normal social relations with them.

Thus, much of our behaviour in the shape of interests, attitudes, habits, sense of application or criticism, moods and temperaments is fashioned through conditioning. The

process of conditioning, not only helps us in learning what is desirable but also helps in eliminating, avoiding or unlearning of undesirable habits, unhealthy attitudes, superstitions, fears and phobias through reconditioning. An individual who hates a particular person or object may be made to seek pleasure in their company. Another individual who thinks it is a bad sign if a black cat crosses his/her path can be made to give up his superstitious belief.

4.5.4 Operant Conditioning

Although identified as and regarded in the category of conditioning operant, this type of conditioning is highly different from the classical conditioning, which Pavlov and Watson advocated. The biggest differing factor lies in the order related to imitations and response, i.e., stimulus-response mechanism. In classical conditioning, the organism is passive. It waits for an action to give a reaction. It is important for a stimulus to be present to evoke a response. The behaviour cannot be initiated when there is no cause present. The child gets scared only when he hears a loud noise; the dog does not salivate before the arrival of food. In these types of cases, the subject cannot influence or change whatever is happening. His/her behaviour is a form of response to the stimulus situations. Thus, the environment initiates the subject's behaviour and the organism simply responds.

There was a revolt from Skinner against the no stimulus—no response mechanism in the evolution of behaviour. He put across an argument that in practicality, it is not always possible to wait for things to happen around us. Man is not victimized by the environment. He may often manipulate the environment. Man is not a victim of the environment. It is likely for him to usually manipulate the environment by using his own initiative. Therefore, the existence of some known stimuli or cause for evoking a response is not always necessary. Generally, a large number of our responses cannot be attributed to the known stimuli. The organism itself initiates the behaviour. A dog, a child, or an individual 'does' something, 'behaves' in some manner, and 'operates' on the environment which in turn responds to the activity. The response of the environment to the activity, whether it is rewarding or otherwise, has a major effect on whether the behaviour will be repeated, maintained or avoided.

A question which may be asked at this stage would be: What source gave Skinner the cues for such ideas? Beyond doubt, the source can be attributed to the studies and observations of an earlier psychologist named Edward Lee Thorndike. His experiments propagated his famous trial and error theory of learning. It was Thorndike's conclusion that the rewards of a response (like getting food after a chance success through the random movements) led an act to be repeated and S-R associations to get stronger. These inferences motivated Skinner to start a series of experiments to get a confirmation of the results in terms of repetition and maintenance of behaviour. On the basis of the outcome of his experiments, he came to decide that its consequences shape and maintain behaviour. An organism operates it and its results maintain it. When this type of behaviour occurred, it was known as operant behaviour and the process of learning that played an important role in learning such behaviour was termed by him as operant conditioning.

For understanding the basis of Skinner's theory of operant conditioning, let us define and explain some of the concepts used by him.

Respondent and operant behaviour

As we have seen, the earlier theories of learning assumed the existence of a known stimulus as a necessary pre-requisite for evoking a response. Skinner, at first, put forward

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the idea that the majority of responses could not be attributed to the known stimuli. He defined two types of responses—the one elicited by a known stimuli, which he called ‘respondent behaviour’ and the other emitted by an unknown stimuli, which he called operant behaviour. Examples of respondent behaviour may include all reflexes, such as jerking one’s hand when jabbed with a pin and the constriction of the pupils on account of bright light or salivation in the presence of food.

In respondent behaviour, the stimulus preceding the response is responsible for causing the behaviour. On the other hand, the stimulus causing operant behaviour is unknown and knowledge of the cause of the behaviour is not important. Here, the consequences of the behaviour are of greater significance and operant behaviour is controlled by the strength of its consequences rather than by the stimuli. Some common examples of such behaviour may include the arbitrary movement of one’s hands arms or legs, a child abandoning one toy in favour of another, eating a meal, writing a letter, standing up and walking about and similar other every day activities.

Operant: Skinner considers an operant as an act in which an organism performs an activity, for example, raising the head, walking about, and so on.

Reinforce and reinforcement: The concept of reinforcement is identical to the process of presenting or removing anything that increases the chances of the repetition of a response. Skinner recognizes two types of reinforcements, positive and negative.

A positive reinforcement to behaviour is any stimulus, such as food, water, sexual contact, and so on. In the educational context, praise, grades, medals, and other prizes awarded to students are examples of positive reinforcers.

A **negative reinforce** is any stimulus, the removal or withdrawal of which increases the likelihood of a particular behaviour. An electric shock, a loud noise, and so on, can be termed as negative reinforcers. In the educational context, one example may be a teacher’s saying to the students that whoever does drill work properly in the class would be exempted from homework.

Negative reinforcers and punishment: These two terms should not be taken to have the same meaning. Whereas reinforcers, positive as well as negative strengthen behaviour, punishment weakens it. Punishment has consequences, which are not reinforcing or, do not strengthen behaviour and aims at reducing behaviour by imposing unwelcome consequences. On the other hand, negative reinforcers strengthen desirable behaviour by withdrawing unpleasant experiences. Here it should be noted that for a measure to be called a punisher it should invariably seek to reduce the frequency of a behaviour by the imposition or introduction of an unpleasant consequence. For example, in the case of a student who feels pleased about being outside the class instead of feeling bad, to turn him out of the class would not act as a punisher or a means of behaviour modification.

Schedules of reinforcement

Skinner introduced the idea of planning the schedules of reinforcements for acclimatizing the operant behaviour of an organism. Some important schedules are as follows:

- (i) **Continuous reinforcement schedule:** This is a complete reinforcement schedule, where it is provided to reinforce or reward every correct response of the organism during the acquisition of learning. For instance, a student may be rewarded for every correct answer that is given by him to the questions or problems put across by his teacher.

- (ii) **Fixed interval reinforcement schedule:** In this schedule, the organism is rewarded for a response made only after a set interval of time, for example, every 3 minutes or every 5 minutes. The number of times he has given correct responses during this fixed interval of time does not matter; it is only at the expiry of the fixed interval that he is presented with some reinforcement.
- (iii) **Fixed ratio reinforcement schedule:** In this schedule, the reinforcement is given after a fixed number of responses. A rat, for instance, may be given a pellet of an eatable after a lever is pressed for a fixed number of times. A student may be rewarded after the answer to a fixed number of questions, say 3 or 5 are correct. The **fixed ratio schedule** is used in some factories and by employers of casual workers or labourers, where wages are paid on a piece-work basis, i.e., the number of garments sewn or the number of baskets or boxes packed.
- (iv) **Variable reinforcement schedule:** When reinforcements take place at different intervals of time or after a varying number of responses, the schedule can be termed as variable reinforcement schedule. In such cases, reinforcement is alternative or not constant. The most common example of such a schedule in human behaviour is the reinforcement operation schedules of gambling devices. Here, it is not possible to predict the rewards and keep the level of motivation high in players through occasional returns.

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4.5.5 Constructivism

Constructivism is another popular learning theory. It deals with how people learn and assimilate external stimulus. The theory is largely based on scientific experiments and observation. As per this theory, people construct their own learning patterns based on their personal experiences and observations of the world around them. In other words, human beings *create* their own knowledge. We are constantly learning new things, forming connections between old and new knowledge, discarding useless information, questioning our observations, and assessing everything we absorb.

In practical terms, as far as the classroom is concerned, the constructivist theory can be applied to various teaching practices. Under the aegis of the this theory, students are encouraged to experiment and solve real-world problems through discussion and brainstorming. Teachers who apply the constructivist theory understand how important it is to challenge misconceptions and other preconditioning and steer the students to more constructive and positive learning reinforcement through practical teaching. In fact, constructivism tries to reach down into and set off the student's instinctive curiosity about their environment and its workings.

Constructivists have always been criticized by the more conventional or old-fashioned educators because the theory seems to undermine the role of a teacher or a subject-expert in the teaching process. However, constructivism does try to transform that role from that of a figure who encourages memorization of facts to a figure who becomes a mentor in the child's journey and provides tools that develop problem-solving skills, analytical capabilities, and creative problem solving. Using these tools the student can come up with new ideas and test their validity, arrive at their own conclusions and learn to make use of collective knowledge in a collaborative learning environment. Constructivism changes the student from being a passive absorber of facts to a dynamic participant in the teaching-learning process.

4.5.6 Gestalt Theory of Learning

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Gestalt is a German word whose equivalent in English is 'form' or 'pattern' or 'configuration'. Max Wertheimer has explained the term *Gestalt* as the whole is being greater than the parts, for example, a flower is just not a total of sepals, petals, calyx, corolla, colour, honey and fragrance. However, the total of the part is not equal to the whole. This is known as a *Gestalt* viewpoint. According to this view, learning is the organization and reorganization of behaviour that arises from the interaction of a maturing organism and its environment. It is the development through this interaction of new forms of perception, imagination motor coordination and other organic behaviour. The sudden appearance of a solution is an essential characteristic of insight learning. A sudden coherent pattern of a solution appears at once. The individual does not perform random activities, but preserves the situation as a whole, and intuitionally reaches the goal through an awakened insight by continuous, definite and seemingly purposive reactions. Insight is the perception of relationship between at least three factors, an agent, goal and intervening conditions or obstacles. An insight is often termed as the AHA experience, a flash of understanding that comes to us all of sudden. Insight, when it occurs, is characteristically accompanied by statements like 'I got it'.

The *Gestaltians* tend to place great emphasis on the intrinsic organizing capacity in the brain of the individual and emphasize on the dynamic interaction of the elements in the entire perceptual feel. The *Gestalt* theory of learning essentially consists of problem-solving by understanding the relative position of the elements in the entire perspective or situation. When a problem arises, it tends to disturb the equilibrium of the organism who seeks the balance and the organism. We are all now well aware that a moving picture, as in cartoons, is not moving but, a series of still pictures. The focal point of this theory is the fact that when two optical stimuli are perceived by the human eye in quick succession, the reaction is one of simultaneous patterning.

Principles of *Gestalt* theory

The *Gestaltians* have mentioned some laws involved in learning. The age at which memory develops is determined chiefly by the growth of a sufficient number of association fibers to bring about recall. There are different modes of connection or association among percepts and ideas. Suggestive force works according to certain laws that are as follows:

- **Law of similarity:** This makes the individual grasp things that are similar. These similar things are selected from the total context. Thus, similar ideas and experiences get associated together. An object receives another object that resembles it, for example, seeing a man and remembering an intimate friend by some resemblance in his personal appearance. A photo reminds us of the person who it represents.
- **Law of proximity:** According to this law, proximate or things lying close to each other are perceived as together. In other words, perceptual groups are favoured according to the nearness of their respective parts. Items tend to form groups if they are spaced together. For instance, the example of a triangle and a circle is enough to illustrate this point.
- **Law of closure:** The law of closure implies that closed areas are more stable and satisfying than unclosed ones. Closed areas more readily formed in groups. This law also means that when the perception of the situation is incomplete, the

individual is not able to solve the problem. The problem is solved when he is able to bring separate parts of the situation together into a closed perceptual figure, consisting of the goal, and the means of achieving the goal.

- **Law of continuity:** This law makes the individual grasp things that are joined together in a string or a line as opposed to objects that are disconnected, disjoined or scattered. In other words, experiences which occur together either simultaneously or in close succession, tend towards reviving one another, for example, the perception of a ripe mango suggests the idea of its sweet taste and flavour because they are perceived together in the past or the idea of an inkpot suggests the idea of a pen.
- **Law of contrast:** A perception or an idea tends to suggest its contrary opposite. For instance, adversity reminds a person of his days of prosperity. Similarly, the heat of the summer suggests the cold of winter. These laws of learning highlight *Gestalt's* viewpoint that the organizational capacity of the brain grasps the whole in priority to the parts.

Keeping in view these principles for learning, the teacher should present all curricular material to students in the form of simple, concrete and patterned units of experience that constitute a whole. Children should be taught a tune or a melody rather than separate notes, whole dance patterns rather than separate steps and simple meaningful sentences, rather than discreet words and meaningful words than separate letters for alphabets.

Educational Significance

Gestalt psychology's contribution to education lies in its concepts of the organization of stimuli and of insight. The world of the classroom in which the child is living and learning is not just a body of discrete stimuli nor is his responses to it those of trial and error adoptions. The world is organized; it has meaning. The child can react with understanding, he has insight. Arithmetic is not isolated fact but a system of numbers. History is not names and dates but a sweep of events through time, with one thing leading to or following another. The child can respond to 3 and 4 because he can add three and four. Learning is meaningful. So say the educators and so says *Gestalt* psychology.

Gestalt psychologists suggest educators to conceive the problem of learning in more comprehensive terms. The teacher should organize the learning situations so that significant relations emerge resulting in advanced levels of understanding. The learning experiences should be so arranged that the learner discovers and generalizes the relationship for himself. The subject matter should be organized into larger units or in meaningful wholes. The concept of unit planning is based on the same.

In most classrooms, the daily lesson plan is fragmentary. It may encourage mere accumulation of facts, principles, concepts and skills and the student fails to get a clear picture of the whole. A lesson of prose may be taught in four or five steps or periods. However, if the matter taught on the first day and the last day fail to connect in the mind of students they tend to get confused. It is thus said that the whole is not equal to its parts. Whenever students appreciate the beauty of a poem, the sip of a soft drink or the beauty of a song or picture, they appreciate as a whole. A flower is not merely equal to its various parts. Similarly, the taste of lemonade cannot be analysed based on coldness, yellowness and taste. Thus, it has been seen that for a more complete aesthetic appreciation, poetry should not be taught in the same manner as prose. It should be taught, as far as possible, as a whole, not merely as an amalgamation of meaning, grammar

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or translation. There is no clarity of connection between an activity and a goal, when the parts are offered one at a time, so that a view of the whole is not possible, when the level of performance is not in congruence with a student's equipment and experience, blunders occur and consume a lot of time and effort. However, the use of proper and graded steps and sufficient preparing of expectancy from one stage to another can reduce this to a bare minimum. The presence of blundering is thus a barometer that measures the intelligence of the teacher and not merely of the performer.

There are two important stresses with regard to the presentation of material. Firstly, where possible, visual presentations, outlines, maps, charts and graphs may be used. In short, devices that permit a survey of the whole problem, which bring out configurational and relational factors—simultaneously presenting what otherwise would remain discrete—have special value. A child who is learning about colours finds it difficult to dissociate the colour from the object itself. To overcome this difficulty, the teacher will have to discover the gaps that exist between the student's perceptual tendencies and that which appears to be clear and definite the experienced and intelligent. Secondly, there is an obvious difference between a 'psychological' and a 'logical' way of presenting. The logical process will begin from the smallest unit and from there the whole frame work of the object has to be elaborated, for example, in teaching 'matter' one will proceed as, sub electronic particles—electrons—atoms molecules—matter. However, satisfying this might look to an expert, who can appreciate the significance of each step of the process, the *Gestaltists* insist that it is not pedagogically sound.

The abstract conceptual items that govern the working of science are really the last items to result in knowledge. If this is correct, one should begin with the living totality and reach the last of all abstract formulations, the unitary process. We can further make this point clear by taking an example from geography. A teacher begins teaching geography by comparing the world map with an orange and explaining the relation between the sun and the earth. Now, on one hand, this represents one way where the whole is considered before its parts, on the other hand, it represents the worst possible use of the method. An orange has some meaning, but it fails to have the remotest connection with the problems of geography.

It would sound more meaningful to consider the world of the child, for instance, his own house and the houses around him or his school, home and surrounding area of the locality. These are complete units too and make sense to the child. These can be used to establish a basic foundation of geography.

A major point in this learning is that initial insight is only instinctive and automatic. This insight can be brought about through maturation, experience and good arrangement of the environmental forces. The teacher must postpone the task until circumstances are more propitious. If, for example, a child is unable to appreciate a poem, no amount of analysis into rhymes, schemes, grammatical constructions and similes will supply the want. Details must always follow general grasp or vague emotional insight. Further, since it is required for perceptual fields to take shape and relationships to appear, motivation is very critical. However, in this case, motivation is more important than just interest more than some impelling stimulation. It is more of the nature of expectancy, a goal orientation, an awareness of all but complete relationships.

Briefly speaking, this type of learning is very important in education because it discards the memorizer type of learning, it does not consume much time and emphasizes upon meaningfulness, organization and interpretation of the lesson. Here, the individual is engaged in a problem-solving environment that encourages reasoning, develops thinking

and trains imagination and creative activity of the child. Learning by insight can be cultivated. Thus, the teacher should emphasize it by encouraging, helping and guiding the child. This aspect of teaching is also called the Dalton plan or the project method by John Dewey and those who advocate creative activity.

4.6 SUMMARY

- Educational psychology consists of two words—psychology and education.
- Educational psychology attempts to define, describe and explain the changes that take place in the learner through his various stages of development. It is the study of the human mind as it bears upon learning and teaching activities.
- Educational psychology provides to the teacher information on certain problems regarding the development of children. The teacher's effectiveness will depend on his own experience and approach towards educational problems.
- Educational psychology deals with the nature of the children and the environment, and both of these are unstable. A child may not behave the same way even in the same environment at different times. Educational psychology provides only the guidelines. Its generalizations are not as exact as the generalizations of natural sciences.
- Educational psychology employs various methods to improve the teaching-learning process in the classroom. It uses these methods to gather facts about the nature of children; how they learn and how they develop. It employs methods to know how any aspect of a child's personality, such as learning, social adjustment or skills, develop from the elementary stage to a complex one.
- Introspection is composed of two words, *intro* and *aspection*. *Intro* means *within* or *inward* and *aspection* means *looking*. Hence, the word implies self-observation or looking *within* or looking *inward* to experience 'one's' mental state. It is a process of examining one's mental process of thought, feelings and motives. An individual looks within, observes, analyses and reports his feelings.
- According to John Dollard, 'The primary research instrument would seem to be the observing human intelligence trying to make sense out of human experience.' Observation has been defined as 'measurement without instruments'. In education, observation is the most commonly employed method among all measurement techniques.
- A clinical study is the in-depth study of an individual in all its details. It helps to reveal the underlying causes of misbehaviour by careful observation of an individual. It provides insights into adjustment problems.
- The experimental method is generally regarded as the most sophisticated research method for testing hypotheses. In the words of W S Manro and M D Engelhast, 'Experimentation is the name given to the type of educational research in which the investigator controls the educative factors to which a group of children is subjected during the period of inquiry and observes the resulting achievement.'
- Learning is defined as a process that brings relatively permanent changes in the behaviour of a learner through experiences or practice. It can be classified into specific categories like trial and error, conditioning, insightful learning, serial learning,

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Check Your Progress

10. Which are the four elements of the conditioning process?
11. Who is known as the father of behaviourism?
12. Name the two kinds of responses which Skinner defined?

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associate learning, chain learning, verbal learning of motor skills, effective learning, cognitive learning, and so on.

- Connectionist or behaviourist theories belong to the school of behaviourism. They interpret learning in terms of connection or association between stimulus and response. This category includes theories including Thorndike's theory of trial and error learning, Guthrie's continuity theory of learning, Hull's drive reduction theory of learning, classical and operant conditioning, and so on.
- Cognitive theories, on the contrary, belong to the school of *Gestalt* psychology and cognitive psychology. In place of a purely mechanical or instrumental approach, these theories emphasize the role of purpose, insight, understanding, reasoning, memory and other cognitive factors in the process of learning. Under this category, theories including the theory of insightful learning, Lewin's field theory of learning, Tolman's sign learning, and so on, may be included.
- Thorndike's theory of trail and error is of great significance in the field of education. It explains the process of learning among animals and human beings on the basis of actual experiments. Not only human learning but animal learning also follows the path of trial and error, before he arrives at the correct solution. Even discoveries and inventions in the various fields of knowledge are the result of the trial and error process.

4.7 KEY TERMS

- **Introspection:** The word implies self-observation or looking *within* or looking *inward* to experience 'one's' mental state. It is a process of examining one's mental process of thought, feelings and motives.
- **Cognitive theories:** These theories emphasize the role of purpose, insight, understanding, reasoning, memory and other cognitive factors in the process of learning.
- **Conditioning theory of learning:** It involves the conditioning of respondent behaviour through a process of stimulus association and substitution.
- **Extinction:** It is a process in which conditioned response disappears gradually or S-R association is disconnected.
- **Negative reinforce:** It is any stimulus, the removal or withdrawal of which increases the likelihood of a particular behaviour.
- **Gestalt:** It is a German word whose equivalent in English is 'form' or 'pattern' or 'configuration'.

4.8 ANSWERS TO 'CHECK YOUR PROGRESS'

1. Educational psychology deals with the conditions that promote or retard the development of the learner. Educational psychology attempts to define, describe and explain the changes that take place in the learner through various stages of development. Educational psychology investigates the methods and techniques of imparting education to the learner, discovers a number of general rules and applies these to the practical problems of learning.

2. The three important characteristics of educational psychology are as follows:
 - It combines two fields, i.e., education and psychology.
 - It is the scientific study of human behaviour in educational situations.
 - It is one of the many branches of applied psychology.
3. Some of the ways how educational psychology helps are as follows:
 - It caters to individual differences.
 - Helps to understand the learners.
 - Helps to understand the developmental characteristics.
 - Helps to understand group dynamics.
4. The four methods of collecting data are as follows:
 - Introspection
 - Observation
 - Clinical
 - Scientific or experimental
5. Introspection is composed of two words, *intro* and *aspection*. *Intro* means *within* or *inward* and *aspection* means *looking*. It is a process of examining one's mental process of thought, feelings and motives. An individual looks within, observes, analyses and reports his feelings.
6. The different types of observation are as follows:
 - Participant observation
 - Non-participant observation
 - Structured observation
 - Unstructured observation
7. Clinical method is employed to an individual in cases when he/she has a problem. A clinical study is the in-depth study of an individual in all its details. It helps to reveal the underlying causes of misbehaviour by careful observation of an individual. It provides insights into adjustment problems.
8. The five characteristics of learning are as follows:
 - Learning is growth.
 - Learning is adjustment.
 - Learning is experience.
 - Learning is purposeful.
 - Learning is intelligence.
9. The factors that affect learning are as follows:
 - Psyche of the student
 - School atmosphere
 - Home atmosphere
 - Socio-economic factor

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10. The four elements of the conditioning process are as follows: The first element is a natural stimulus, the second element is the unconditioned response, the third element is the artificial stimulus and the fourth element is the chain of the conditioning process.
11. John Watson (1878–1958) is known as the father of behaviourism.
12. Skinner defined two types of responses—the one elicited by known stimuli which he called ‘respondent behaviour’ and the other emitted by the unknown stimuli, which he called ‘operant behaviour’.

4.9 QUESTIONS AND EXERCISES

Short-Answer Questions

1. State the importance of educational psychology.
2. What are the limitations of educational psychology?
3. List the different methods and techniques of collecting data.
4. What is learning?
5. Write a short note on the different factors that affect learning.
6. What are the different types of learning?
7. Which method of learning did Kohler draw attention of the people to?
8. Briefly mention the contribution of Pavlov in learning.

Long-Answer Questions

1. Discuss the focal areas and scope of educational psychology.
2. Explain the relevance of educational psychology for the people involved in teaching.
3. Write in detail any two methods of educational psychology.
4. Why is learning important for us?
5. Clarify Kohler’s method of learning.
6. Mention the experiments of Pavlov in the field of conditioned response.
7. Summarize the contribution of Watson in learning.
8. Explain the laws of learning in the light of historical background.

4.10 FURTHER READING

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UNIT 5 STAGES OF HUMAN DEVELOPMENT

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Structure

- 5.0 Introduction
- 5.1 Unit Objectives
- 5.2 Heredity and Environment
 - 5.2.1 Principles of Heredity
 - 5.2.2 Prenatal Development
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 - 5.4.3 Sound Discrimination
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- 5.5 Adolescence
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 - 5.5.3 Emotions in Adolescence
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 - 5.5.5 Interests of Adolescents
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- 5.8 Answers to 'Check Your Progress'
- 5.9 Questions and Exercises
- 5.10 Further Reading

5.0 INTRODUCTION

Education aims at the all-round harmonious development of an individual. The development of a nation depends upon the development of its children and there is no doubt that childhood is the foundation upon which the development of an individual depends. Development of proper attitudes, habits and patterns of behaviour formed during the early years determine to a great extent how successfully an individual will adjust as he grows older. It is, therefore, imperative that the people who are responsible for the development of the child should be acquainted with the meaning and characteristics of development. Every child is unique. There are individual differences in children due to differences in development. In this unit you will learn about the different stages of human development.

5.1 UNIT OBJECTIVES

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

- Paraphrase the principles of heredity
- Explain prenatal development
- Explain the concept of infant development

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- Discuss emotional development in different stages of growth
- Discuss the different stages of motor development
- Identify different stages in transition from infancy to childhood
- Discuss intellectual and social development in adolescents

5.2 HEREDITY AND ENVIRONMENT

Development is not a random process. It is steady and a regular progression of a process. It follows a sequence in which development progresses from head to toe. In this pattern of proximodistal sequence, the process of development starts from the centre and gradually moves to the peripheries.

Growth is the cause of certain changes in an organism. However, these changes are not sudden occurrences. It is an ongoing process. Every part of the body keeps growing until it reaches its maximum limit of growth. This process goes on through infancy, early childhood, later childhood and so on. In the beginning years, the growth rate is more rapid and not uniform. However, as age increases, growth becomes slower.

During early years, brisk growth is more evident and as life progresses towards later stages, it becomes sluggish. Similar is the case of development, which is general in the beginning and later, it becomes specific. In its initial stage, a child's overall responses are general. Gradually the responses are reactions to specific stimuli.

Development of a child is greatly influenced by heredity and surroundings. Every child has some gift from his/her genes which are polished by interaction with the environment. Neither heredity, nor environment alone affects the development of a child.

Majority of the traits, like physical and mental development, are linked to each other. A child who is physically healthy also has a healthy intelligence. Similarly, a healthy child will also have a positive sociability, attitude and aptitude. Nevertheless, this is only true in normal cases. Different parts of a body have different growth rates. When a child is born, its head is proportionally bigger than its body. Later, other parts of the body continue to grow rapidly till maturity.

This section discusses the development conception to birth in detail.

Conception to Birth

The conception process is very complex and important for understanding human development. Conception, also known as fertilization, begins with the fusion of an egg cell and a sperm cell, or gametes. At birth, a female has all the immature eggs that she will use throughout the course of her life. A male human being starts producing sperm when he reaches puberty (around 1,000 sperm in a second, but this rate slows as the male ages).

From 200 to 600 million sperm are released in the average ejaculation but a rare few make it to the actual egg, and only one sperm is needed to form a zygote (or a fertilized single-celled egg, the earliest form of human beings). As soon as that one lucky sperm begins to penetrate the jellylike outer coating of the egg cell, the egg becomes defensive and the surface of the egg cell hardens to block out any other sperm cell from penetration. The sperm uses digestive enzymes to work its way through the egg's surface.

Though a female is born with all her eggs, not all these eggs will reach maturity. Approximately only 1 in 5,000 of a female's eggs reach maturity. When an egg reaches maturity, that egg is then able to produce offspring.

Cell division

Once the zygote is formed, the cell goes into the division process. The first division is called mitosis. In mitosis, the zygote divides to form two identical daughter cells. Later, the cell begins another form of division called meiosis. Meiosis produces four daughter cells, each daughter cell containing half the chromosomes of each original parent cell. Meiosis is necessary to keep the chromosome number constant from generation to generation. The divisions will continue, until a human being is formed. The cells move, or migrate, in relation to other cells, forming the first shape of the embryo; this migration is called morphogenesis.

Gene codes

Each gamete (egg and sperm) has 23 chromosomes, and when the human is completely developed, she will have 46 chromosomes. Your genes are located on your chromosomes. A gene is a small piece of one chromosome; it is a code for a specific sequence of amino acids in a protein. Each code is different and very complex, which brings about many different traits.

Most people are familiar with genes as a transportation of hereditary traits. Genes can affect whether or not you will be born with attached earlobes, freckles, or a widow's peak. Genes are the hereditary codes that are passed on to an offspring. Traits, which are caused by your genotype (or genes for a particular trait), can be dominant or recessive. Dependent upon the alleles carried on the chromosomes you received from your parents, your appearance will develop accordingly.

5.2.1 Principles of Heredity

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 functioning of heredity and environment is similar to that of two eyes, two hands, two feet, two legs, and so on, 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:* Black-coloured parents generally have black children, tall parents tall children, bright parents bright children, and so on. This holds good 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, yet the resemblances of

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parents and their offsprings are never perfect. Black-eyed children may be born to brown-eyed parents. Even the 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 $1/2$ comes from parents, $1/4$ from his grand-parents, $1/8$ 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 goes 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
 - (viii) Determination of sex
5. *Principle of dominant and recessive traits:* Some traits are dominant while other 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 his or her 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.

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 (ribonucleic acid). 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.

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.

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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 same genes. They possess almost the same characteristics and are definitely of the same sex.

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 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.

5.2.2 Prenatal Development

Over a relatively brief nine-month period, a single-celled zygote transforms into a fully formed foetus made up of around 1 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.

1. 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.

2. Embryonic period

The embryonic period lasts from fertilization 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.

- (i) 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.
- (ii) 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 lungs

Then a third layer develops between these two:

- (c) **Mesoderm** – Middle; muscles, circulatory system and inner skin
- (iii) **Organogenesis** – Process of organ formation that takes place during first two prenatal months
- (iv) 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)

3. 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 increases. At this point, the

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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.

5.2.3 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 GP 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

The infant is born with basic reflexes survival mechanisms, that are genetically carried, 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
4. **Grasping reflex** – Touch infant's palm and it will grasp finger; aids in attachment

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

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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.

5.3 INFANCY

Infancy is the period that follows the neonatal period and includes the first two years of life. During this time tremendous growth, coordination and mental development occur. The developmental process during infancy occurs in the first 24 months of living and is the beginning foundation to an individual's physiological and psychological development. Humans experience rapid growth during this period in which many physical changes often occur. Newborns are essentially immobile and have very little voluntary control over many behaviours.

The infant's motor skills continue to evolve as muscles develop in the body. Psychologists believe the motor skill of an infant is a developmental process supported by the elements of nature and nurture (Santrock, 2004). They also theorize that infants who are constantly encouraged and stimulated by their caregiver are likely to achieve certain milestones at a much more expedient rate. Infants are born with certain reflexes such as grasping, sucking, coughing, yawning and blinking. In the first three months, the infant is unable to roll over and support or control head movement. The infant's ability to stretch and kick is also more vigorous at this time. At four to six months, the baby should be able to roll over and hold its chest and head up. By seven to nine months, they should be able to sit and possibly stand. Walking capabilities should develop between twelve or thirteen months.

Brain development is also part of the physical process. Infants are not born with all the interconnections formed in their brains. 'At birth and in early infancy, the brain's 100 billion neurons have minimal connections' (Santrock, 2004). The synaptic connections within the brain begin to increase as the infant develops and responds to its environment. The infant's brain dramatically changes each time it learns a new skill or encounters a new experience. 'Infants are born not only with a brain ready to respond to critical features of the environment, but that the brain can react to particular features of the particular, individual environment' (Keller, 2007).

Within a few weeks of birth, the infant is able to respond to loud noises by blinking, or waking from sleep. The newborn can focus on objects 12 inches in distance and by three months, the infant should be able to examine visuals that are more complex as well as a variety of colours, sizes and shapes. By the end of three months, they may even be able to mimic facial expressions. Infants are born with the ability to cry in order to communicate discomfort. Babbling, squealing, cooing, gurgling and laughing become their added means of communication around four months of age. As their attention span increases, they will begin to decipher certain sounds and also recognize his or her name.

Check Your Progress

1. What are the two categories of hereditary traits?
2. What is the postnatal period?

Piaget's theory of cognitive development suggests that humans have an innate concept or framework that already exists at a given moment in order to organize and interpret information through the construction of schemas, which involves the two processes of assimilation and accommodation. From this standpoint, an individual can incorporate new information into existing knowledge and accommodate their schemas to new information. It is also through this theory that the human cognitive process is separated into gradually evolving stages. The time frame between birth and two years is known as the sensorimotor stage. In this stage, the infant begins to construct an understanding of the world by correlating sensory experiences with physical actions. This theory also suggests that infants have a limited ability to understand that objects and events continue to exist even when they cannot be seen, heard or touched directly (object permanence).

The socio-emotional process of infants begins to develop from the responsiveness and sensitivity of their caregivers. It is during this process that the infant formulates an attachment to their caregiver from the establishment of trust. Since the infant's first experience is usually with its mother, it can distinguish the mother's voice because of its abstract memory of being inside the womb 'based on prenatal experiences that newborns prefer their mother's voices to the voice of another woman'. Thus, a nurturing and trusting relationship with the mother is vital to this process of development and helps to establish good temperament in childhood. A loving environment also promotes a sense of well-being within the infant, which makes them more tolerant to having new experiences with other strangers. The learning of other relationships in the future 'is based on infant's inherent curiosity and motivation to learn'.

Baby's exposure to experiences affects its development

Every experience an infant is exposed to impacts its developmental process. The elements of nature and nurture intertwine and shape the outcome of each experience. It is also the result from these early experiences that influence the later stages of human development. Ultimately it is safe to conclude that heredity, nutrition, health, stimulation and environment are the sustaining factors, which determine whether or not an infant can achieve optimal physical, cognitive and socio-emotional growth, which will be carried over into the next stage of human development.

Most infants learn to walk, manipulate objects and can form basic words by the end of infancy. Another characteristic of infancy is the development of deciduous teeth.

During this period, the behaviour of the infant is activated by innate needs which create tension and in order to reduce tension, the infant is motivated for action which gratify its needs. The infant's behaviour operates purely on an altruistic level unrelated to any social world but gradually social events become the prime motivator of behaviour, for example, hunger motivates the infant for action (crying) and it requires the bottle or breast for the gratification of its need and its actions become more learned and goal-directed. It strives to imitate previously successful actions and thus socialization begins.

The child depends on someone for the fulfilment of his basic needs. Dependency is a type of operant behaviour that has as its required environmental events affectionate and nurturant behaviour performed by another person.

In early infancy, the behaviour of the child is controlled by the principle of operant conditioning. Social environment in which an infant is born has a great influence on its later development. The sex of the child, ordinal position in the family and socio-economic

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condition of the parents have bearing on the development of personality. In India, a male child is preferred to a female and discriminative treatment is given right from the birth of the child.

According to Sears, 'A child is allocated to one sex or the other, and society begins to implant in him motives, interests, skills and attitudes appropriate to such membership.'

The first phase, as a matter of fact, interlinks the biological endowment of the child with his/her social environment where through the process of constant interaction his/her personality develops. Conducive social environment is very essentially required for the development of a harmonious personality.

Deciduous teeth

Deciduous teeth, otherwise known as milk teeth, baby teeth, or primary teeth, are the first set of teeth in the growth development of humans and many other animals. They develop during the embryonic stage of development and erupt—become visible in the mouth—during infancy. They are usually lost and replaced by permanent teeth, but in the absence of permanent replacements, they can remain functional for many years.

Deciduous teeth start to form during the embryo phase of pregnancy. The development of deciduous teeth starts at the sixth week of development as the dental lamina. This process starts at the midline and then spreads back into the posterior region. By the time the embryo is eight weeks old, there are ten areas on the upper and lower arches that will eventually become the deciduous dentition. These teeth will continue to form until they erupt in the mouth. In the deciduous dentition, there are a total of 20 teeth: 5 per quadrant and 10 per arch. In most babies, the eruption of these teeth begins at the age of six months and continues until 25 to 33 months of age. The first teeth seen in the mouth are the mandibular centrals and the last are the maxillary second molars. However, it is not unheard of for a baby to be born with teeth.

Developmental Aspects

'Healthy mind in a healthy body' is an old adage and is true to the core. The physical development of the child is very important for a number of reasons. Appropriate physical development makes valuable contribution to the all-round development of an individual. When a child is involved in some physical activity, he/she is emotionally as well mentally busy. Physical development of the individual is important both for the individual and social development. It is also important for ethical, moral and spiritual development. A physically unhealthy person, other things being equal, is unable to perform his/her duties to himself/herself, and to the community.

By not giving proper attention and care to the physical development of the child, we may be guilty of causing serious handicaps to the total development of the child, including his/her emotional, intellectual and social, even ethical and spiritual well-being. Knowledge of the process of the physical growth of the child and development will equip the teacher to set curricula according to the needs of the children.

Meaning and dimensions of physical growth and development

Physical growth and development refers to a process which brings about bodily and physiological changes—internal as well as external—in an organism from the conception till his death. Generally, these changes take place in the following dimensions:

- (i) **Gross physical structure or physique:** It involves changes in height, weight, body proportions and general physical appearance.
- (ii) **Internal organs:** It involves changes in the functioning of glands, nervous system and other body systems—circulatory, respiratory, digestive, muscular, lymphatic and reproductive.

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5.4 CHILDHOOD

Childhood is the age span ranging from birth to adolescence. According to Piaget's theory of cognitive development, childhood consists of two stages: preoperational stage and concrete operational stage. The early years of a child's life present a unique opportunity to lay the foundation for healthy development. It is a time of great growth and of vulnerability. Research confirms that negative early experiences can impair children's mental health and affect their cognitive, behavioural, social-emotional development (both as a child and as an adult).

This section explains the different physical and emotional development during the childhood period of a child.

Visual Perception of Patterns and Forms

1. Early pattern perception (0 to 2 months)

- (a) Very young infants prefer to look at high-contrast patterns with many sharp boundaries between light and dark areas, and at moderately complex patterns that have curvilinear features.
- (b) Babies prefer to look at whatever they see well (Banks & Ginsburg, 1985), and the things they see best are moderately complex, high-contrast targets, particularly those that capture their attention by moving.

2. Later form perception (2 months to 1 year)

- (a) Between 2 and 12 months of age, the infant's visual system rapidly matures.
- (b) The infant now sees better and is capable of making increasingly complex visual discriminations.
- (c) The infant also organizes what he or she sees to perceive visual forms.
- (d) Kellman and Spelke (1983) were among the first to explore these issues. Infants were presented with a display consisting of a rod partially hidden by a block in front of it. The observations they made were as follows:
 - Newborns exposed to a partially screened moving rod see two separate objects rather than a continuous form
 - The impressive ability to use object movement to perceive form is already present by 2 months of age
 - By age 3 to 4 months, infants can perceive form in some stationary scenes that capture their attention
- (e) Even 12-month-old infants are better at constructing form from limited information. After seeing a single point of light move so as to trace a complex shape such as a star, 12-month-olds (but not 8- or 10-month-olds) prefer to look at actual objects with different shapes.

Check Your Progress

3. What is infancy?
4. What are 'deciduous teeth'?

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3. Face perception

- (a) Most studies report that, for the first 8 weeks, infants lock on to high-contrast outer boundaries of facial stimuli and spend little time looking at the internal features (eyes, mouth, and lips) that might define a face as a coherent and meaningful form.
- (b) As 9- to 12-week-old infants begin to scan intricate details, they also come to prefer faces to scrambled faces.
- (c) Three-month-olds know what faces are supposed to look like, for they clearly prefer a normal face to an otherwise identical stimulus with its patterns of visual contrast reversed.
- (d) Three-month-olds also recognize and prefer to look at their own mothers' face than those of other women who are similar in appearance.

Perception of Three-Dimensional Space

- Infants younger than 2 to 3 months of age do not exhibit any stereopsis—a convergence of the visual images of the two eyes to produce a singular, non-overlapping image that has depth
- Nativists would argue that several cues to depth and distance are monocular—that is, detectable with only one eye
 1. Early use of kinetic (motion) cues
 - (a) As a moving object approaches, its retinal image becomes larger and larger and may expand to occupy the entire visual field (this is, loom) as it draws near the face.
 - (b) We might infer that they can use kinetic cues to perceive movement. By 3–4 weeks of age, many infants blink in response to looming objects, thus displaying a 'defensive' reaction that becomes much stronger over the next 3 months.
 2. Development of size constancy
 - (a) Size constancy is the ability to infer that the dimensions of an object remain constant over a change in distance.
 - (b) Until recently, researchers claimed that size constancy could not emerge until 3 to 5 months of age, after infants had developed good binocular vision (stereopsis) that enabled them to make accurate spatial inferences. But even newborns know something about an object's real size.
 3. Use of pictorial cues
 - (a) Albert Yonas (1987) and his associates have studied infants' reactions to monocular depth cues, which are the tricks artists and photographers use to portray depth and distance on a two-dimensional surface across the third dimension.
 - (b) Yonas found that 7-month olds reliably reached toward the windows that appeared nearest, whereas 5-month olds displayed no such reaching preferences.
 4. Development of depth perception
 - (a) In the early 1960s, Eleanor Gibson and Richard Walk developed an apparatus they called the visual cliff to determine whether infants can perceive depth.

5.4.1 Perception Developing during Childhood

In order to make sense of the world, the brain gathers and processes information it receives from the five senses. Visual perception is a critical part of this process and should not be considered as simply a passive recording of visible material. We do not always see things the way they are or as they relate to their environment. Only a part of what is perceived derives straight from our visual system, while the rest is the result of our interpretation, let us say the intellect.

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Visual Perception: Visible and Intellectual

1. **The visual brain:** As far as the visual system is concerned, perception is purposeful and selective. The selectivity of our visual perception is greatly dependent upon our distinct 'attention' and 'visual search'. The former involves a kind of focalization on important aspects of the visual field and the periphery of the visual field, whereas the latter includes the process of linking several fixations on the same visual scene to allow more detailed exploration. The integration of all these fixations is an immediate and instinctive process that creates what we call our vision of an image.

But what are the main elements that we visually perceive?

- **Luminosity:** The response of the visual system to the actual quantity (intensity) of light sent out by an object
- **Colour vision:** The response of the visual system to the wavelength of light rays sent out or reflected by objects
- **Visual edges:** The response of the visual system to the spatial distribution of light, meaning the spatial limits of objects, their visual edges, outlines
- **Contrast:** The response of the visual system to the interaction of luminosity and edges

These elements are never perceived in isolation but always in relation to each other, they are produced simultaneously and, therefore, the perception of each has an effect on the perception of the others.

The major visual pathway from the retina to the brain is known as the optic pathway. It carries signals to the primary visual cortex situated at the back of the brain. In the primary visual cortex, cells that receive signals for the features of vision outlined above are neatly grouped together into different, anatomically identifiable compartments. The specialized compartments of the primary visual cortex send their signals to further visual areas. These further visual areas are located in a large area of the cortex that surrounds the primary visual cortex, which until recently was referred as the 'visual association' cortex. They are themselves functionally specialized, but collectively they work to create the visual scene. So, the visual brain consists of many operationally distinct areas that work symphonically to produce an image, with the primary visual cortex serving as the royal gateway, providing a link to the retina. Each visual area works as a specialized processing system, devoted to a particular feature of the visual scene, which allows the brain to 'collect' different attributes of the visual scene simultaneously and in parallel. But the specialized areas do not all connect with a master area, which can then 'interpret' or understand what they have processed; there is no single master area to which all the visual areas uniquely project.

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So how exactly do the operations performed by the different visual areas integrate to give us our unitary image of the visual world? Functional specialization suggests a temporal hierarchy in vision, suggesting in turn that the processing systems are also perceptual systems. But, by definition, perception is a conscious act. Are 'seeing' and 'understanding' then indeed two separate processes, with separate seats in the cortex? Kant had put forward the view that the mind could be divided in two faculties, the passive one of sensibility, concerned with the collection of raw data, and the active one of understanding, or in other words intellect, which made sense of the raw data.

2. **The intellect:** The intellect relates to a series of mental operations, which occur to manufacture the perception of an image. These involve receiving, storing and identifying the visual information, and therefore are significantly linked to memory, thinking and learning. Such processes include active exploration, selection, grasping of essentials, simplification, abstraction, analysis and synthesis, completion, correction, comparison, problem solving, combining, as well as separating and putting in context (Arnheim, 1969). These procedures may be carried out instinctively or intentionally and they construct the ways in which we filter, translate and understand what it is that we see.

The co-relation

The connection between the material and the mental in vision is uncertain; our mental image of what we see is importantly different from its retinal projection. The eye focuses an image of the object upon the retina, then messages are carried to the brain and certain physical and chemical effects vibrate the muscles and the nerves. From our early years upwards, these functions are increasingly subordinated to higher order cognitive processes taking place at other levels of our cortex. And there appears consciousness: what we understand of what we see is a mixture of complex visual judgments that are then passed into more complex intellectual judgments. Undoubtedly, the simple perceptual processes do still function to provide sensory data on which the operation of the more complex processes depends. But it is the more complex processes, which normally determine our understanding of and response to the environment.

Here lays an interesting example of how these complex processes work: When we move through an environment, we perceive an accordingly continuous change of the projective sizes of all the objects that surround us. The setting as a whole is subjected to a unified and constant adjustment in size; each part of the visual field is in constant relation, and hence, variability to every other part, and any particular entity is evaluated in relation to its complex content. In terms of vision, we are receiving full information on these contextual changes, but the intellect consciously ignores this rich information in favour of constancy. What we actually see and what we understand of seeing are two different things but are visually perceived as one and the same in terms of our need for continuity and stability.

An answer to the co-relation of vision and the visible can be found in the 'synthetic approach' of visual perception, which proposes that we find equivalents for the visual world in stimuli alone. In other words, it suggests that our perception mechanism is sophisticated enough to recognize objects in space simply from an optical image on the retina. Although the optical image projected upon the retina is a mechanically complete recording of an image, the equivalent visual perception is not. The perception of a shape is the understanding of structural characteristics found in, or imposed upon, the stimulus material.

The Gestalt Theory rests on this approach emphasizing the natural competence of the brain to organize visual information according to universal and unchanging laws, such as proximity/contiguity, similarity, closure/good continuation, simplicity, area/smallness, figure and ground. The intellectual judgments will organize the stimulus material according to the simplest pattern compatible with it, based on its essential structural characteristics. Perception consists in fitting the stimulus material with templates of relatively similar shapes, which can be called visual concepts or visual categories. The simplicity of these visual concepts is relative, in that a complex stimulus pattern viewed by refined vision may produce a rather intricate shape, which is the simplest attainable under the circumstances. What matters is that an object at which someone is looking can be said to be truly perceived only to the extent to which it is fitted to some organized shape (Arnheim, 1969). Simple form and movement perception are integrated with and supported by processes of identification, classification and coding through the operation of perceptual schemata which depend to a considerable extent on learning, memory, attention, reasoning and language.

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5.4.2 Auditory Perception

It is commonly thought that in the normal individual the auditory sense is the only one to function perfectly from the moment of birth, whereas other senses take some time to develop completely. However, unless an individual can make sense out of what is heard, hearing is, for all practical purposes, nonfunctional. Recently, we have come to realize that certain types of brain injury or dysfunction make it difficult, or impossible, for an individual to make sense naturally of the auditory stimuli received by the brain. It should be pointed out that hearing and listening are not synonymous in the auditory process. Whereas hearing is basically a physiological process, listening is an intellectual one, requiring interpretation, analysis, integration and evaluation.

Some children have yet to learn that sounds have meaning. The ability to pinpoint the source of a sound and identify its unique characteristics requires that the child be able to focus attention long enough to learn these things. Outside noises and subtle classroom sounds, such as the hum of fluorescent lights and radiator noises, can distract the child who has a problem focusing attention. In addition, the ability to store auditory information and retrieve it in proper sequence is basic to the learning process. Without these skills it is virtually impossible to learn spoken or written language. Without language, one is extremely limited in the ability to communicate with others or to understand the world.

Children with auditory perception problems may have some of the following characteristics. It is seldom, however, that we would see all these behaviours in one individual.

Children with auditory perception problems may have an inability to:

- Locate the source of a sound (localization)
- Identify specific characteristics of sound (intensity, duration, pitch, timbre)
- Relate a sound to its symbol
- Repeat what was said without visual clues
- Follow directions without visual clues
- Recognize when a sound changes
- Identify same and different sounds
- Distinguish a specific sound from among others (figure-ground)

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- Recognize previously learned auditory material when presented in a different medium
- Integrate auditory information with other sensory data
- Comprehend words in a song

Training in listening and interpreting sound develops auditory perception. It is obvious that music learning depends on one's ability to perceive aurally. Conversely, music training can enhance auditory perception. When planned with specific aural skills in mind, music activities can help a child:

- Improve the ability to attend to aural stimuli
- Interpret both verbal and nonverbal information
- Remember auditory learning from one experience to the next
- Integrate auditory information with that received through other sensory channels

5.4.3 Sound Discrimination

The characteristics of a sound (i.e., intensity, duration, pitch and timbre) are presented as subdivisions in the activities for developing auditory discrimination skills. Music education goals and objectives generate sequential music experiences leading to a thorough understanding of these characteristics and the ways in which they are combined in music composition. Children with auditory perception problems frequently have difficulty in processing speech sounds. It is interesting to note that speech, singing and music all have the following common elements; tempo, rhythm, pitch, stress (accent) and dynamics. Auditory discrimination skills, then, are equally important for general learning and for music learning.

Intensity: Of all music elements, dynamics is most easily comprehended. In the average child it is the first to develop, and we usually find that young children can easily discriminate between loud and soft by the time they enter preschool or kindergarten. With these children our task is mainly to refine their skills to include discrimination of more subtle differences in dynamic levels. Children who lack gross loud-soft discrimination are likely to include the hearing impaired.

Duration: Duration is the element in music that deals with time concepts. Time concepts are tempo (the speed of the music), meter (the organization of beats, usually into measure), and rhythm (the organization of longer and shorter sounds and silences within a time framework). Rhythm is basic to body function and speech as well as music. Recently, much attention has been focused on biorhythms, and educators, too, are beginning to be concerned with how an individual's natural inner rhythm relates to learning style and needs. Classroom activities (and/or tempo in music) are often paced too fast to enable all learners to grasp the objective.

Pitch: Pitch concepts, such as high/low and up/down, are necessary for understanding the melodic structure of music. Seriation and sequencing skills, characteristically lacking in many learning-disabled children, are utilized in understanding scales, modes, and harmonic structure in music. In some countries of the orient and Africa, languages are tonally based; therefore, pitch discrimination is a prerequisite to speech. The same word spoken with different pitch inflections has multiple meanings. It is often said that there are no tone-deaf individuals in those countries. Whether or not this is true, one can certainly appreciate why a poor sense of pitch would serve as a barrier when learning the language. The importance of pitch inflection in the English language is probably

underestimated until one experiences listening to speech without inflection or with misplaced inflections. In addition to speech and language development, the ability to recognize, identify, and reproduce pitches of varying frequencies is necessary in perceiving and reacting to one's environment.

Timbre: Timbre refers to the 'colour' characteristics of a sound that give it a unique quality. It is the awareness of timbre that allows a person to aurally distinguish a clarinet from an oboe or a car horn from a train whistle. Without timbre discrimination skills, the environment could be a hostile place in which to live. Again, timbre discrimination is an important skill in the development of speech and language. Comprehending vowel and consonant sounds depends largely on the ability to discriminate differing timbres. When children are screened for auditory discrimination problems, the measure used tests for discrimination of speech sounds only. It is not unusual, however, for children who have been identified as having auditory discrimination problems to perform as well as their peers in nonverbal discrimination tasks. Discrimination of musical sounds involves a more gross discrimination. Often the child's problem will be more obvious in the inability to learn and remember words to songs.

In all discrimination tasks, the lowest level of competency is that of recognition of same and different, followed by identification of specific characteristics and, finally, by integration and synthesis. Discrimination tasks should begin with two greatly contrasting sounds and gradually move to finer discrimination of sound among more dimensions. Subsequent goals should facilitate generalization and transfer.

The long-range goals for auditory discrimination skills are found in all music education curriculums and are equally valid for developing auditory skills for general learning. Each child demonstrates:

- The ability to perceive and identify (label) each characteristic of sound
- An understanding of the characteristics of sound through musical performance
- The ability to creatively apply understanding of the characteristics of music

For the child who has difficulty processing sound, auditory learning is facilitated by pairing the auditory stimulus with another sensory mode such as visual (pictures, diagrams), kinesthetic (body movement), or tactile (manipulative materials). At some point, however, these extra auditory clues must be withdrawn lest the child become dependent on them. It is recommended that the distance between the sound source and the child be increased gradually to as much as thirty feet for those activities in which it would be appropriate.

5.4.4 Depth Perception

Humans have two eyes, and each eye receive different images. Humans perceive depth by coordinating the images of their left and right eyes to perceive stereoscopic depth, which is important for the visual perception of three-dimensional space. Thus, depth perception is actually considered to be the visual ability to perceive the world in three dimensions. It is believed that all animals who are moving have a sensation of depth. This depth perception helps all the moving animals including human beings to move accurately and to make a response based on the distances of objects in the environment.

Depth perception occurs because of depth cues. These cues are either binocular, which means the input from the environment is from both the eyes and monocular cues that require the input from just one eye. Monocular cues helps in judging the relative distance and depth of the objects. The problem emerge from the fact that how the image

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of three dimensional world is projected on the two dimensional retina. The retina directly reflects height and width, but depth information is lost and reconstructed on the brain of depth cues, different kind of visual information that logically provide information about some object's depth. There are various cues for perceiving depth in the world, some are as follows:

Monocular cues: It is known as a pictorial depth cue because they include the kind of depth information found in the photographs and painting. These are extensively used by the artists in their painting. Their cues are as follows:

- (a) **Aerial perspective:** Distant mountains often look fuzzy and a building far in the distance is more blurred than those that are close. However, the further away an object is, the hazier the object will appear. This is called aerial perspective.
- (b) **Linear perspective:** When parallel lines appear to be converging at a distance, it is called linear perspective. The converging line means a great distance away from where they start.
- (c) **Relative size:** When objects that people expect to be of certain size appear to be small and are, therefore assumed to be much farther away.
- (d) **Light and shadow:** We are often aware of the source and direction of light. It is generally from above, as sunlight. The shadow cast by one object on another can indicate which object is farther away.
- (e) **Interposition:** If one object seems to be blocking another, people assume that the blocked object is behind the first one and therefore farther away. This is also known as overlap.
- (f) **Texture gradient:** The object lying on a surface that look fine and smooth is texture are perceived at a greater distance than those objects on a rough surface. The pebbles or bricks that textured, but as you look farther off into distance, their texture become smaller and finer.
- (g) **Motion parallax:** The discrepancy in motion of near-far objects is called motion parallax.
- (h) **Accommodation:** Accommodation makes use of something that happens inside the eye. The brain can use this information about accommodation as a cue for distance. Accommodation is also called muscular cue.

Cognitive Development: The Piagetian System

Jean Piaget and his co-workers conducted research on cognitive development and the processes that lie under the adaptive behaviour from birth to adolescence and enormous literature was produced on cognitive development and other aspects of a child's development. Piaget has studied the developmental process of understanding knowledge and the working of the child's mind. His system though, did not express any definite opinion on educational practices but was nevertheless of great value to assess teaching, the structure and sequencing of subject matter in the curriculum and in the organization of various activities in and outside the classroom.

Before we describe the cognitive system as developed by Piaget, we shall first consider some of the concepts which are very essential to understand his system.

Basic Concepts

Schema: Piaget was interested in the developmental process and the change in behaviour. The concept of the schema or scheme applies to the sensorimotor behaviour of the

infant. The infant sucks the breast of the mother; it looks at the objects of its environment; listens to different voices in its environment; and finally it tries to comprehend, conceptualize the articles, animals, space and many other cognitive structures. The process of conceptualization is closely dependent upon the sequences of behaviour employed by the infant to adapt to its environment. Although a particular scheme derives its name from the behaviour sequence it describes, it implies some internal organizational disposition that enables the sequence to adopt itself to a variety of conditions.

According to Piaget, sensorimotor sequence and cognitive structures are of the same class because they are continuous processes. As the development proceeds, each scheme enlarges and changes, and is coordinated with other schemes to form more complex schemes.

The sensorimotor schemes develop out of reflex behaviour of the infant. They are reduced and internalized as they continue to function and are gradually converted into cognitive schemes. As the sensorimotor schemas are converted to the more covert and symbolic structures, they become generally synonymous with the processes we call concepts, generalizations, principles, constructs and plans.

Piaget believed that schemas (cognitive structures) exist in primitive form as conception and progressively develop during the lifetime in certain systematic ways. According to him, cognitive structures contain all the necessary energy for their emergence and development without requiring some motivating force.

Assimilation and Accommodation

The schemas, which are acquired in infancy, are exercised and changed in later life. The process of change is accounted for by the psychological processes constantly at work called assimilation and accommodation.

At the sensorimotor level, when the infant acquires grasping schema, it picks up things and objects and grasps them. This scheme of grasping objects is called assimilation. Suppose, the grasping schema is inadequate, the object is too small, it must change in order to manage the new situation. This is accommodation at work. The play activities of infants are the examples of the process of assimilation. The infant will take a stick and assimilate it to its available schema, making it into a horse, cow or man. The example of accommodation is imitation of others. In the process of imitation, the child suppresses its available scheme and strives to establish a new schema. The structures or the schemes change from one stage to another by the process of equilibration. Through the processes of assimilation and accommodation the organism attempts to adapt to its environment to maintain balance between itself and its changing environment.

Piaget's Developmental Stages

Jean Piaget advanced a quite new theory of development of cognitive abilities. He proposed that cognitive development proceeds through an orderly sequence of stages. The important concept of his theory of cognitive development is not the age at which the child moves from preferred mode of response to another but the fixed progression from one stage to another. The child cannot adopt the strategies of a later stage at an early stage of development without having first acquired and exercised the strategies of the earlier stage.

The stages of cognitive development are related in that they represent forms of adoption but these forms are qualitatively different; that is the adaptive functions are

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transformed as the child moves from one stage to the next. This theory of development is quite different from the theory of associationists which emphasizes the gradual accumulation of responses.

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Stages of cognitive development

Jean Piaget divides the stages of cognitive development in 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. The development of this period is very important for future life.

The intellectual development at this age is marked by four fundamental characteristics: (i) object concept formation, (ii) coordinated space, (iii) objectified causality, and (iv) 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/her 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 and then then attempts to retrieve an object that disappears from his/her range of action. When the child acquires the scheme of object permanence, he/she is likely to exercise it at every opportunity; he/she will drop objects of his/her 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 concept which is characterized by relationship among objects and between objects and his/her 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/herself 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/she does not directly participate. Appearance of representations during the 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. **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, the child demonstrates that he/she 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,

the child develops ways of representing the environment in the absence of perceptual cues and build a set of symbolic schemes.

3. **Period of intuitive thought (4 to 8 years):** At this stage, the child is able to use concepts as stable generalization of 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 is unable to 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. **Period of concrete operations (8 to 12 years):** Concrete operation means that stage of cognitive development when the child is able to direct 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. 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. **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/her contemplation of possibility. The child starts to form hypothetico-deductive reasoning. The use of formal operations is what is called the controlling aspects of comprehending.

The child at this stage in his/her formal thinking can free himself/herself of the here and now in a lawful and systematic way. The child's wisdom lies in the masterful administration of the unforeseen. When an adolescent is faced with a problem, he/she 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 adolescents using formal operations view the concrete data as inducing a set of propositions and he/she 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 adolescents to transfer understanding from one situation to another.

The adolescents show a particular orientation to problem solving. They analyse and organize their 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

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operations are the logical and mathematical concepts which are used in advanced conceptualization and reasoning, etc., that is difficult to represent concretely.

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5.5 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). Adolescence is usually marked with less parental influence and greater peer influence.

5.5.1 Physiological Growth

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.

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:

- Development of secondary sexual characteristics
- Development of sex organs
- Intellectual, emotional and psychological development

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.
- **Development of shoulders and chest:** During this stage, boys develop broad shoulders and wider chests due to development of bones and muscles. This growth spurt might cause stretch marks in these areas.
- **Development of muscles:** During puberty, the muscles of the body increase in mass and strength, in both boys and girls.

Check Your Progress

5. What is motor development?
6. What is depth perception?

- **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. Boys develop 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.
- **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 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.

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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. The figure 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.

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.

As an adolescent boy/girl grows, they develop problem-solving skills and become capable to take part in decision-making in school or at home. Adolescents are able to analyse information and experiences by critical thinking and handle new situations through creative thinking. The adolescents 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 their emotions. One may feel awkward and self-conscious at times, confused and insecure at other times. All these are normal feelings and the adolescents gradually gets used to such emotions and eventually gets over them.

5.5.2 Mental Development

Mental development or intellectual development is the development of mental abilities and capacities which help individuals to adjust their behaviour to the ever changing environmental conditions. It enables them to achieve complex tasks that require complex cognitive abilities. According to Bruner (1964): 'Intellectual development is the capacity to deal with several choices at the same time.'

All studies on mental growth have reported that mental abilities increase with age. Mental development during adolescence accelerates on many intellectual fronts. The following are the characteristics of mental development in adolescence:

1. **Increased ability to generalize facts:** One noticeable characteristic of mental operation in adolescence is the increased ability to generalize facts. Children usually generalize in relation to concrete objects. The intellectual development in children operates on a perceptual level, but in adolescence the ability to generalize on conceptual level develops. The adolescent can generalize in an abstract way. The acquisition of the ability to generalize accurately enhances the adolescent's self-concept and gives him/her the confidence to face situations different from those encountered before.
2. **Increased ability to understanding:** There is an elevation in the ability to understand relationships and to solve problems of greater complexity and difficulty. The depth of understanding also develops. The adolescents can think of solutions to more difficult problems.
3. **Increased ability to deal with abstraction:** The adolescents can think not only in general terms but in abstract terms as well. They can think in terms of symbols in addition to concrete things. The ability to carry on abstract thinking is not something that suddenly develops in adolescence. It is relative. This ability to comprehend and to communicate meanings in abstract qualitative concepts is an important aspect of intellectual maturity in adolescents. The process of manipulating abstractions involves conceptualization, which means the process of forming a mental picture of something which can or cannot be pictured in concrete form.
4. **Development of memory and imagination:** The memory in adolescents develop tremendously with the growth in vocabulary. They can imagine a situation which is not physically present before them. Their long-term memory increases. They can retain facts for a longer period of time. They can anticipate future needs and can plan for it. The idea of historical past can be grasped by adolescents. The idea of time concepts becomes clear to them.
5. **Growth away from trial and error method:** Trial and error is the primitive method to solve problems. During adolescence, an individual develops the capacity

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to cope with situations through manipulation of pertinent factors. Teachers should encourage adolescents to develop the habit of substituting thought for trial and error method of solving problems.

6. **Ability of problem solving:** The ability to solve problems increases in adolescence. Adolescents can solve problems with the help of symbols. They can deal with ideas that do not represent something in which a person is directly involved. The adolescents solve and talk about national and international problems. They are able to mentally deal with events in a world that extends far beyond their own immediate sphere of activity.
7. **Increased ability to communicate with other persons:** The adolescents on roads, in coffee houses, and tea stalls can be seen arguing for hours on topics of their interest.
8. **Identification with conditions and characters in the larger world:** Another important change in intellectual orientation that takes place at adolescence is the ability to identify with circumstances and people outside one's immediate environment.
9. **Ability to make decisions:** Individuals have to make many decisions in their daily life. Decision-making ability is necessary for successful adjustment in life. During adolescence, we expect the growing child to gain confidence and help in developing opinions. Thinking involves a certain amount of freedom as well as independence that comes from maturity and wisdom. Adolescents have the ability to think about their future. They can differentiate between the ideal and the actual. They are reasonably objective in taking note of some of their weaknesses.
10. **Understanding of moral concepts:** Children, without questioning the validity of moral training, obey the moral code framed by parents, but as they enter adolescence they critically examine the moral code and ask questions. The moral consent becomes internalized and the adolescent is able to differentiate between what is good and what is bad.
11. **Self-criticism and evaluation:** Adolescents begin to evaluate their performance objectively but the majority of adolescents do not achieve the mental maturity to do so. They either overestimate or under-evaluate their performance.
12. **Increased rational self-control:** Generally children do what they want to do. They do not take into consideration the logic or rationale of doing a thing. Adolescents show more intellectual maturity in performing an act. They achieve rational self-control which is promoted by a good mastery over developmental tasks which develop a sense of achievement and duty in them.

5.5.3 Emotions in Adolescence

The characteristics of emotions in adolescence are as follows:

- **Complexity:** By the age a child steps into adolescence, he/she experiences a number of emotional upheavals and storms. Emotional development becomes complex due to various experiences with the environment. We cannot understand adolescents by the overt emotional expression, but we have to fathom deep to understand them. The adolescents learn to conceal their true emotional experience.
- **Development of abstract emotion:** Generally children show emotional expression in relation to concrete objects but adolescents can express their

emotional feelings in relation to objects which are abstract or which are not present in concrete form.

- **Emotional feelings are widened:** As the child grows he/she starts taking into account the past and imagines the future. Thus, we can expect the adolescents to become more patient and tolerant. There is great shift in their social sphere.
- **Bearing of tensions:** Adolescents develop competencies to bear the tensions in different social situations. The emphasis is on self-control. They feel a kind of inner freedom—freedom to feel and experience in an intimate personal way.
- **Capacity of sharing emotions:** The adolescents develop concern about the feelings of others and an increased capacity for sharing emotional experiences with others. In childhood, children are not able to control their emotions. Sharing of emotional experiences reaches the peak of development when adolescents are able to relate themselves to other persons in such a way that the satisfaction of the person is just as important as their own. It means the adolescents begin to love their neighbours as much as themselves.
- **Loyalties expand:** Emotional development begins from the home environment of the infant and during adolescence it is expanded beyond home and neighbourhood. These loyalties are identified with peers and leaders of various fields.
- **Realism in emotional experiences:** Now the child enters the period of reality. An adolescent can perceive and appreciate people around him. They recognize the importance of weakness and strength of one's character.
- **Reviewing of hopes and aspirations:** Adolescence is the period of life when one has high hopes and aspirations for the future. Some adolescents work realistically to achieve their expectations and others do little to realize their hopes; they remain in illusion, and in the world of day-dreams and flights of fancy which make them unrealistic.
- **Tolerant of aloneness:** The adolescents develop a feeling of aloneness. Sometimes they like to be alone in their home.
- **Externalization of feelings:** The adolescents learn to externalize their feelings in various situations of their external environment. They can project their feelings to others.
- **Increased compassion:** Compassion is the single quality which enables a man to achieve highest peak and the deepest reach in the search for self-fulfillment. Adolescents at this stage also develop the feeling of compassion.

Common Emotional Patterns in Adolescence

Emotions develop out of feelings of excitement in two channels from early childhood: delight and distress as love, affection and fear, anger and hostility. We will examine development of emotions during adolescence.

- **Love and affection:** The emotion of love is very important in adolescents and is related to sexual impulse. It is due to the physiological disturbances. The emotion of love and affection develops from the very infancy in the life of the organism. In infancy, love and affection develop in concrete objects of the environment, inanimate and animate, but in adolescence emotion of love and affection is associated with people and only occasionally with pets. Adolescents are able to

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discriminate people with whom they like to associate and build up affectionate associations. Gilliland reports that childhood loves are not sexual in nature but adolescence love becomes a source of pleasure. The circle of people becomes limited. The adolescents become very closely attached to one another because of intense feeling of love. The associations made in this period are lasting. The maturation of sex is the chief source of newness in the lives of the adolescents. Most of their conversation centres round sex and its problems. Commenting on the importance of love, Wenkart remarked, 'Adolescents who are able to love possess a priceless gift. When they are loved in return they taste one of life's greatest joys.'

- **Joy, pleasure and delight:** During adolescence, physical condition is one of the sources of joy and pleasure. The first cause of joy is one in which individuals fit, or to which, by virtue of capacity and ability gets well-adjusted.

The second situation which calls forth joy in the adolescents are the release of pent-up energy. The more intense the pent-up energy and the longer it has been bottled up in the individual, the stronger will be the release when it finally does take place.

The third common cause of happiness in adolescents is the feeling of superiority. Every adolescent feels insecure and uncertain in life. Any situation that is opposite to these feelings, give happiness. Passing the examination in first division, being elected to students union, and being declared first in athletics, or other contests, give feelings of superiority to adolescents.

- **Worry:** Worry is an imaginary fear. It is caused by a repeated rehearsal of the situation that is feared. It is referred by some psychologists as 'anxiety', an emotional state in which the disturbing situation does not accompany the state, but is anticipated in the future. The adolescents have the following types of worries:
 - o School work
 - o Examination and test
 - o School problems such as favouritism by the teacher, unreasonable homework, lack of ability to concentrate, not knowing how to study, worry of failure, and inadequacies related to their sex role.
 - o Home worries, i.e., lack of understanding between adolescents and parents, illness of parents, difficulty in marriage, friends' health, financial problems, personality weakness.

- **Fear:** Fear is an important negative emotion. No systematic work has been done on fears of adolescents in Indian conditions. Fear is learned from the environment in which a child moves. No generalized conclusions can be drawn about the objects of fear during adolescence. Some categories of objects are listed below which may cause fear:

Fear of material objects: Fear of snakes, dogs, strange noise, lions, elephants, aeroplanes and so on.

Social relationship: (i) Meeting with people in high offices (ii) being with elders (iii) being alone in a room (iv) reciting in the class or speaking from the platform (v) meeting members of the opposite sex.

Adolescents are capable of disguising fear. A frightened person may show anger. Fears decrease with the advancing age of the child in number and intensity.

- **Anger:** Anger is also a learned response to environmental stimuli. It is social in nature. Hebb, writing about the nature and source of anger and fear, says: 'The fundamental source of either emotion is of the same kind, a disruption of coordinated cerebral activity'. Fight and aggression are two different modes of reaction tending to restore the dynamic equilibrium, or stability, of cerebral process. Each of these modes of response tends to restore integrated cerebral action.

- (a) Failure of material object
- (b) Teasing by teacher, parents, elders and peers
- (c) Being unfairly treated
- (d) Sarcastic remarks, encroachment of his/her rights by brothers or sisters
- (e) Thwarting of self-assertions, insulting remarks, unwelcome advice, not being invited to a party and failure in activities undertaken

Causes of Heightened Emotionality

Causes of heightened emotionality are as follows:

1. **Change of roles in home, school and society:** As soon as children enter adolescence, their social roles and responsibilities change. Change of roles require adjustment to new situations in a different way. The adolescents have to change their old habits of childhood at home, in school and in the society. The change-over to new pattern of habits create emotional tensions in adolescents. The process of weaning from total dependence to independent role with greater responsibility disturbs the adolescents.
2. **Unfavourable relations in home:** Parents in most cases are responsible for heightened emotional quotient in adolescents because they do not prepare their sons and daughter to meet the problems of adolescence. They do not change their own attitudes towards adolescents. They still treat them as children which creates rebelliousness in adolescents against their parents. There are quarrels with parents and siblings on trivial matters.

Adolescents need money to meet their demands of recreation and clothes, under peer pressure. They become emotionally disturbed when they fail to meet these demands.

Adolescents have to face new social situations which disturb them, for example, talking with members of the opposite sex and meeting officers or elders.
3. **Social expectations:** When children become adolescents, society and parents expect them to think and act like an adults for which they are not physically and intellectually mature. Adolescents fail to decide their status in social settings and the failure to meet social expectations results in emotional disturbances and failure to adjust to new environment. The adolescents, due to shift in roles, have to make new adjustment in different social situations. They have to leave the accustomed patterns of childhood and make new adjustment in a short period of time.
4. **Difficulty in adjustment to the member of opposite sex:** We observe that in later childhood, there is little interaction between boys and girls. In adolescence there is attraction towards the member of the opposite sex but the adolescents are not able to understand the correct social behaviour, of how to make friendship with members of the opposite sex. These problems create emotional tensions in them.

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5. **Religious conflicts:** Every child is trained in a special setting of religious beliefs and values. The child without questioning the authenticity of the teachings of his/her parents obeys them but with advancing age, is able to critically examine the beliefs and starts to question the teachings of the parents. This leads to conflicts in their mind.
6. **School failures:** School failures cause heightened emotions so much so that many adolescents commit suicide, run away from home and sometimes give up studies.
7. **Conflicts with friends and family members:** Adolescents come in conflict with their friends and family members who fail to understand them. Too much discipline, restriction on movements and lack of understanding of their interests or point of views are the chief sources of emotional disturbances.
8. **Vocational problems:** The most pressing problem for Indian adolescents is the future vocation after schooling. When the adolescents find many adults without any means of livelihood, they get disturbed and a permanent anxiety sets in their minds. Particularly those adolescents coming from poor families and who are the only supports of their families are more disturbed.

5.5.4 Social Development during Adolescence

Man is basically a social animal. His existence without the social set-up can hardly be imagined. He is born in society, and develops, works and progresses in society. Social development is essential for proper adjustment in the society. Social adjustment of the child starts from early infancy. The foundation of social development is laid by parents in the family. The success in future social adjustment depends on parents and other members of the family who lay the foundation of social development. In adolescence the child enters quite a new field of social responsibilities. The society and parents place upon the child new demands which sometimes bewilder the child and he/she fails to adjust successfully in the new role.

The most characteristic social development is the increased influence of peer group. With advancing age, the child remains most of the time with his friends. The friends and type of peer group the adolescent joins, shape his behaviour to a great extent. His interests, attitudes and values are influenced by peers. Studies show that adolescents in urban areas are more guided by their peer group and adolescents in rural areas are guided by their parents and elder family members.

Adolescents become self-conscious of their place in the society and desires that their peers should accept them and should be respected. Therefore, the adolescents conform to the norms of the peer group. Adolescents can do anything for the sake of pleasing their peers.

Changes in Social Behaviour

The most marked change in adolescents is their place in their family. Attitudes of the parents change and they assign social responsibilities to them. Adolescents are taken into confidence on important family matters. The circle of the adolescents tends to become small and their interests become specialized. They start identifying themselves with adults and tries to imitate them.

The most marked and important development appears in their relation with the members of the opposite sex. In childhood, boys play with boys and girls with girls, while in adolescence there is heterosexual trend in companionship.

The adolescent boys and girls form their groups based on their common interests and goals. The social group of boys are larger than girls because boys in our society have more freedom than girls. But very recently in big cities, a new trend toward giving more freedom to girls is emerging as a new social pattern among adolescent girls.

Adolescents make friendship with those who conform to their standard and possess the personality traits they like. The number of friends decrease but the affiliation becomes more permanent. There is interest to make friendship with the members of the opposite sex. The adolescents do not tolerate the interference of the parents and other members in selecting friends. Sometimes because of immature decisions, they can be unwise in selecting friends. The friendship of this period tends to be permanent.

Social interests

- **Parties, celebration:** There is an increasing interest in adolescent boys and girls to attend parties, celebrations and fairs where members of both sex meet.
- **Conversation:** Adolescents take interest in talking about various types of problems. They show interest in social problems of wide variety. Talking plays a cathartic role for adolescents.

School and Social Development

Adolescents need guidance in the development of healthy social relations and for this purpose school is the most appropriate place where a variety of activities can be organized to foster social development. The following activities can help in the development of proper social attitudes:

- **Organize social functions:** The teacher should organize informal social functions in which students may come closer to each other and have an opportunity to understand interests and aspirations of each other. The students may be divided into smaller groups to discuss their problems informally. Social functions should be organized in such a way that must cater to the needs of all types of students.
- **Arrange excursions and trips:** Excursions and outings provide more opportunity for informal conversations and close contact with each other.
- **Arrange games, debates and seminars:** Teachers should organize group-games, debates and seminars to train adolescents to participate in social activities.
- **Appraise social interests:** The teacher should make an appraisal of student's social interests, social acceptance in classroom, socio-economic conditions and organize activities to foster socialization.

5.5.5 Interests of Adolescents

Interest means to make a difference. It describes why the organism tends to favour some situation and reacts to them in a very selective manner. Interest and attention are closely related. Interests of adolescents play an important role in the development of their behaviour and personality. Interest is any activity that drives or motivates individuals to act upon. Interests are very important to understand an individual and to guide future activities.

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Characteristics of Adolescents' Interests

1. **Instability:** In early adolescence boys and girls have a variety of interests. Everything which is new draws their attention. But by the end of adolescence, interests stabilize. They concentrate on selected interests.
2. **Interests in adolescence expand:** Many of the childhood interests are carried over and some are new ones. The field of interests expands with the development of intellectual and social development. An adolescent starts taking interest in national and international affairs. With the advancing age, by the end of adolescence, the interests become stable and specialized.
3. **Interests of adolescents shift in values:** Another characteristic of adolescent interest is the shift in values of different interests. The major interests of childhood may become minor and some new interests may become major interests.

Factors affecting interests

Interests are highly individual actions. The variations in the interests are influenced by a number of factors which are listed below:

1. **Physical development:** Physical development is very important in deciding the development of interest. If the adolescent is physically sound and strong, he/she can participate in sports and games which require strength. But if the adolescent is physically handicapped then his/her interests will be confined to different kinds of activities, mostly indoor.
2. **Sex differences:** There is a great difference between the interests of adolescent boys and girls. The differences may be attributed to the physiological differences and cultural influences. Girls participate in those games and sports which need less vigour. Boys like competitive games of muscular dexterity. The differences among the play interests of boys and girls are not only caused by sex differences but by cultural conditions. Educational level and environmental conditions are also important factors.
3. **Environment:** Environment plays an important role in deciding the interests of adolescents. It influences in giving the opportunity to come in contact with various items of interest. The geographical conditions and climatic conditions influence the interests of adolescents. There is a great difference in the interests of boys and girls from rural and urban areas. Culture also influences the interests of adolescents.
4. **Socio-economic status:** Socio-economic condition of the family also plays an important role in deciding the interests of adolescents. Adolescents belonging to lower socio-economic condition remain busy in the work. They do not have money to purchase articles of games or books, magazines, etc.
5. **Intelligence and play interest:** Lehman and Witty conducted a survey of interest in play activities as shown by gifted and dull adolescents. They concluded that gifted adolescents participate in solitary types of play. They prefer games which involve rules and well-organized system. They do not like those activities which require muscular strength, but on the other hand they like problem-solving activities. Dull boys participate in social games requiring muscular strength.

Types of Interests

The four types of interests are social, recreational, personal and vocational.

1. Social interests

The social sphere of adolescents increases outside the home and neighbourhood. They now come in contact with more people. They develop an urge to communicate with others. The adolescents remain in the company of their friends outside their home most of the time. The adolescents identify themselves with a group with whom they discuss different types of problems. Their talks generally centre round the following themes:

- **Chit-chat:** The adolescents love to meet in groups and do small talks.
- **Discussion:** Adolescents discuss many problems facing the society from every possible angle. Discussions are serious in nature and cover a wide range of subjects and topics. Discussion is more satisfying because it gives them an opportunity to freedom of expression.
- **Arguments:** Arguments grow out of discussion. A discussion starts out to be a friendly exchange of views in which each adolescent contributes his/her knowledge of the subject. When the point of view in a discussion differs, it becomes an argument.
- **Parties, celebration:** There is an increasing interest in adolescent boys and girls to attend parties, celebrations and fairs where members of both sexes meet.
- **Conversation:** Adolescents take interest in talking about various types of problems. They show interest in social problems of wide variety. Talking plays a cathartic role for adolescents.

Studies have been conducted by psychologists to survey the topics of conversation of adolescents. It has been invariably reported by all the investigators that conversation of adolescents centres mainly on sex, clothes, shady stories, vocations and criticism of home, school, adults and teachers among others.

2. Recreational Interests

Recreation contributes to mental health of adolescents by providing them opportunity to express their pent-up emotional feelings and ease their tensions which develop in classroom teaching. In addition to recreation develops creativity and engages adolescent's mind in constructive activities.

Unfortunately there are many Indian adolescents who are deprived of recreational activities. Rural adolescents coming from low socio-economic status have fewer opportunities for constructive recreational activities. Girls in rural areas have even lesser opportunities than girls in urban areas. In the last two decades, recreational activities have tremendously increased with the socio-economic development and technological development in the country.

Types of Recreations

From 12 years to 17 years, all types of games and sports are played by boys and girls but sports requiring physical strength are more popular with boys. Boys who are physically stronger engage in games requiring muscular strength and competition. Weak boys engage in games of individualistic sort with little competition. Girls with strong physique engage in competitive games.

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Hobbies: Hobby is an activity in which something is created or constructed for the purpose of fun. In our country, adolescents in rural areas hardly get time to engage in a hobby. Their hobby is to help their parents in their occupation but in urban areas adolescents develop some hobby to utilize their time and to get the pleasure from their own creation. Adolescents in cities engage in hobbies like free-drawing, gardening, writing, collection and photographing, etc.

Adolescence is a period of life which is full of physical vigour. Adolescents take interest in adventurous activities as climbing mountain peak, exploring unfamiliar places, fishing, etc. These activities give pleasure to adolescents because they are undertaken free from supervision of adults and full freedom is given to meet the challenge.

Reading interests: Reading in adolescence is very important for various reasons. One reason is that reading gives an opportunity for identification with the characters of the reading material. It gives knowledge and entertains the individual. Reading interest reaches its climax in adolescence. They develop a mania for reading novels, short stories, adventure stories and light poetry. Reading interest in adolescence is influenced by a number of factors such as intelligence, socio-economic condition, availability of the reading material and urban-rural factors, and sex. Adolescents read books, magazines, comics, newspapers, etc.

Adolescents like light music, sports news, serial plays, detective, mysterious and crime stories, humorous sketches and dramas. Preferences of radio programme listening is influenced by sex, age and intelligence of adolescents. Nowadays TV, in India, has become a very popular media of entertainment and education. The socio-cultural climate of our country is influenced by multi-channel television programmes. Television has a great impact on the interests of adolescents.

3. Personal interests

Adolescents are more interested in show off than any other thing. They want to attract the attention of others by their muscular body and facial beauty, coloured clothes, hair styles and gait. Social success in adolescence depends on physical appearance. The areas of personal appearance are the body size, hair style, face and nails in girls. Adolescents take interest in developing their body size according to the standard of the culture they live in.

Interest in clothes also becomes prominent in the life of adolescents. They wear multi-coloured and clothes of latest fashion. An adolescent girl who wears extreme in styles draws more attention from people and arouses feelings of admiration and becomes an envy for other girls.

Adolescents are also interested and conscious of physical health and its importance in society. They know the value and influence of good health on their general well-being in the society. They become interested to know as to how to avoid diseases and how to develop good health.

4. Vocational interests

Child up to 12 years of age does not bother much about their future career but as they reach 16 years of age they start thinking about their future career. The choice of future career by an adolescent significantly affects his/her future social relationship in the society and indirect progress of the country. In our country great revolution is taking place in socio-economic and educational fields. These revolutionary changes make it imperative to provide proper guidance to adolescents to help make career decisions.

Factors affecting vocational interests

Several factors affect the choice of future career in adolescence. The most important factors are given below:

- **Urban-rural factor:** The community residence of an adolescent affects his/her vocational interest. Adolescents who come from rural areas generally aspire for low paid and lower prestige jobs than adolescents from urban areas. It may be because of poor educational facilities and experiences of rural adolescents. Even in the rural areas, there are differences in adolescents on the basis of intelligence, sex, socio-economic condition and parental education.

An interesting study was conducted by Sewell and Ovenstein in 1965 to study the relationship between socio-economic status and community size. They have reported in their study that adolescents coming from lower socio-economic conditions are exposed to poor stimulation in the sense that they have contact with people of low status who do not provide good models for inspiring adolescents for higher vocations. They are exposed to less number of vocations. The rural adolescents do not have opportunities of coming into contact with people of high vocations who can guide, inspire and provide proper information to them. But it does not mean that adolescents from rural areas do not aspire for higher vocation. There are many examples in which rural adolescents have excelled their counterparts from urban areas.

- **Sex differences:** Sex differences make great differences in the choice of vocation. Formerly in our country education of women was completely neglected; very few women studied who never thought of joining the service industry. Acceleration of women education and their aspirations for equal access in vocation has created problems. Earlier women were thought to be fit for limited vocations but recently women have entered almost all professions with success.
- **Father's occupation:** Generally adolescent boys identify themselves with the career of their fathers. Werts, 1968, who studied fathers' occupation and career choice of 76,000 boys, found that the sons of physical scientists, social scientists, and medical men tended to choose the careers of their fathers. In addition, the encouragement and inspiration of low socio-economic status parents to their sons plays an important role to select a profession.
- **Occupational attractiveness:** Adolescents are led to make their vocational choice by the prestige, income, and social recognition of the profession by the society. Socio-economic class and intellectual level and availability of vocation are important factors which affect the choice of career in adolescents.

Problems of Adolescents

Any period of change is likely to be accompanied by many potential difficulties. Adolescence is a period of transition from childhood which implies many developmental changes. G. S. Hall has called this period as a period of strain and stress fraught with many problems but other psychologists have laid emphasis on the cultural conditions as the causes of problems in adolescence. Problems of adolescence have been studied by psychologists since a long time but systematic studies were conducted for the first time by Hall in 1904.

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Laycock (2009) grouped the problems of adolescents under the following major tasks:

- Adjustment in home, school, society and to opposite sex
- Freedom from home
- Adjustment in suitable vocation
- Developing a sound philosophy of life

Charlotte Pope made an extensive study of the problems of adolescent boys and girls and reported the following areas of problems:

1. **Teaching-learning relationship in school:** Most of the adolescents face problem in adjustment with teachers. Teachers are rigid, conservative and do not change their attitude. Some adolescents reported the problem of favouritism by teachers. Students also resent the amount of homework given to them.

It is unfortunate that our curriculum is purely theoretical and there is hardly any active participation on the part of the students. Sitting passive in the class creates annoyance in adolescent boys and girls.

2. **Occupational adjustments:** The greatest single problem which bothers the mind of adolescent boys in India is uncertainty of the future. The problem of what to do after the studies are over haunts the minds of unemployed adolescents. There is another black side of the picture when adolescents come across scores of unemployed adolescents. The mind of an adolescent agitates against the social order, and he/she becomes rebellious. It is further unfortunate that most of our adolescents study without future planning. When they finish their study they find themselves incapable of taking up any independent means of livelihood.

3. **Financial problem:** If we recollect the problems of adolescents of pre-Independence period in India, we find that at that time problems were limited. The problems of adolescents have multiplied with the socio-economic development of the country. The problem of money is a big issue. There are many activities of adolescents which involve money. The adolescents need money. They feel ashamed of asking for money from their parents. Parents in turn are conservative in handing out money for extra activities to their adolescent children.

4. **Home life relationship and social adjustment:** Adolescents want more freedom to attend social functions but parents do not permit them to move outside the home. This is particularly more so in case of girls from rural areas.

The second important problem is regarding high aspirations of parents regarding achievement of their wards and when they do not come up to their expectations there is constant quarrelling among parents and adolescents. Sometimes these quarrels result in dire consequences. Adolescents run from their home and may even commit suicide.

There is lack of understanding between parents and adolescents, regarding freedom and money. The parents treat the adolescent like a child. They never discuss problems freely with them.

5. **Health adjustment:** Physical health is a very important factor for adequate social adjustment. Both boys and girls are very particular regarding their

physical appearance. Those adolescents who are either underdeveloped or overdeveloped have great problem in adjustment.

Sex Education and Adolescents

Adolescents have to live in the society; their development depends on proper type of social interactions. We cannot isolate our adolescents from the social set-up. Social environment has many occasions when adolescents come to know about sex and its problems. The child comes to know about sex from the early age of six. Surveys made by Ramsey and Hamilton prove that children cannot be kept ignorant of sex knowledge. The following are the important sources which provide sex knowledge to children:

- Friends
- Literature
- Old people
- Movies
- Drawings
- Reproduction in animal life
- Physiological development

These sources and a number of other sources are responsible for providing knowledge of sex. Many boys and girls worry and suffer from venereal diseases because of wrong information about sex and due to lack of proper guidance. All teachers, social workers and psychologists agree that sex education should be provided to children.

5.6 SUMMARY

- Hereditary traits may be divided into two categories: physical traits and mental traits.
- Over a relatively brief nine-month period, a single-celled zygote transforms into a fully formed foetus made up of around 1 trillion cells. This period of astonishing growth consists of three distinct phases: the germinal stage, the embryonic stage, and the foetal stage.
- 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).
- 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.
- The actions and reactions of neonates are generally known as reflexes. Reflexes are instinctive movements or actions. A few of the movements are impulsive and occur as part of the baby's natural actions, whereas others are in response to certain actions. Reflexes help in identification of normal brain and nerve activities. A few of the reflexes take place only at certain stages of development.
- Emotional development begins at an early age, as soon as children start kindergarten and preschool. They interact with other children, which helps them develop both, socially and intellectually.

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Check Your Progress

7. What is physiological growth?
8. Mention any four factors that affect intellectual development?
9. State any one characteristic of intellectual development.

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- Both the types of development, emotional and intellectual, ideally take place in synchronization resulting in the social development of the child. This is due to the fact that when children interact with other children as well as adults, they develop healthy emotions.
- Motor development is the process of growth in which a child acquires and gains expertise in skills required to move different parts of the body and control them. These are carried out by a combination of the brain, nervous system, and muscles.
- Infancy is the earliest period of childhood, which is the first state of development. On the other hand, childhood is the age span ranging from birth to adolescence.
- Cognitive development focuses on a child's development, referring to his capability to process information, abstract resources, perceptual abilities, language learning and other characteristics of brain development and cognitive psychology, as compared to an adult's approach.
- Language development helps a child communicate and convey and comprehend feelings. It also supports thought processes and the ability to solve problems and develop and maintain relations. The abilities to understand, use and take pleasure in language are the crucial first steps.
- Intellectual development refers to the development of an individual's intellectual faculties which includes comprehension, cognition as well as reasoning based on abstractions. Essentially, intellectual development is the pursuit of activities that involves a higher degree of mental functioning.
- The extent of intellectual development is indicative of an individual's mental health.
- 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.
- Intellectual development is the development of mental abilities and capacities which helps individuals to adjust behaviour to the ever changing environmental conditions.
- Mental health is very important for efficient learning and proper development of personality.

5.7 KEY TERMS

- **Adolescent:** It is the period through which a child develops into an adult.
- **Genetic:** It is related to genes or heredity.
- **Cognitive development:** It is the development of the ability to think and reason.
- **Depth perception:** It is the visual ability to perceive the world in three dimensions.

5.8 ANSWERS TO 'CHECK YOUR PROGRESS'

1. Two categories of hereditary traits are physical and mental traits.
2. Postnatal is the period beginning immediately after the birth of a child and extending for about six weeks.

3. Infancy is the period that follows the neonatal period and includes the first two years of life. During this time tremendous growth, coordination and mental development occur.
4. Deciduous teeth, otherwise known as milk teeth, baby teeth, or primary teeth, are the first set of teeth in the growth development of humans and many other animals.
5. Motor development may be defined as the development of strength, speed and accuracy in the use of muscular parts of the body such as arms, eyes, legs and neck muscles.
6. Depth perception is considered to be the visual ability to perceive the world in three dimensions.
7. Physiological growth refers to the growth and development of physical as well as mental features.
8. The factors that affect intellectual development are:
 - Heredity
 - Physical growth
 - Physical environment
 - Family environment
9. 'Intellectual development' is the pursuit of activities that involves a higher degree of mental functioning. An increased ability to generalize facts is one factor that characterizes intellectual development. Children usually generalize in relation to concrete objects. The intellectual development in children operates on a perceptual level but in adolescence the ability to generalize on conceptual level develops.

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5.9 QUESTIONS AND EXERCISES

Short-Answer Questions

1. Why do we say that early development is more important than later development?
2. State and define the different theories of human development.
3. What are the major influences in developmental psychology?
4. Map Jean Piaget's stages of intellectual development.
5. What according to you is the most important factor in social development?
6. How can mental health of adolescents be secured at school?

Long-Answer Questions

1. Explain the significant facts about development.
2. Discuss the process of conception in detail.
3. Describe the process of birth.
4. What are the five characteristics of social development?
5. Discuss the characteristics of adolescent interests.
6. In Piaget's theory, discuss the role of the schema.
7. Discuss the ways in which social development is dependent on the presence of family and peers.

5.10 FURTHER READING

NOTES

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UNIT 6 INSTINCTS AND EMOTIONS

Structure

- 6.0 Introduction
- 6.1 Unit Objectives
- 6.2 Instinct: Meaning and Definition
- 6.3 Instincts According to McDougall
- 6.4 Emotion: Meaning and Definition
 - 6.4.1 Classification of Emotions
 - 6.4.2 Effects of Emotions
- 6.5 Theories of Emotion
 - 6.5.1 James-Lange Theory
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- 6.6 Educational Utility of Instincts and Emotion
 - 6.6.1 Use of Instincts in Education
- 6.7 Summary
- 6.8 Key Terms
- 6.9 Answers to 'Check Your Progress'
- 6.10 Questions and Exercises
- 6.11 Further Reading

NOTES

6.0 INTRODUCTION

Instinct or innate behaviour is the inherent inclination of a living organism towards a particular complex behaviour. The simplest example of an instinctive behaviour is a fixed action pattern (FAP), in which a very short to medium length sequence of actions, without variation, are carried out in response to a clearly defined stimulus. Instincts play a significant role in our life. They affect our conduct as well as the behaviour.

The development of emotions is extremely important for the harmonious development of personality of an individual. Emotions influence all the aspects of an individual's personality. Proper training and education helps to enable the young people to control their emotions and obtain mental balance and stability. Emotions are the prime forces of thought and conduct and their control is very important. It has been rightly said, 'to keep one's emotions under control and be able to conceal them is considered a mark of strong character'. In this unit, you will read about instincts and emotions.

6.1 UNIT OBJECTIVES

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

- State the meaning and definition of instinct and emotion
- Explain McDougall's theory of instinct
- Describe classification of emotions
- Discuss the theories of emotion
- Explain the role of emotions in education

6.2 INSTINCT: MEANING AND DEFINITION

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Instinct is what we call innate behaviour and it is a living organism's inherent inclination to a specific complex behaviour. A behaviour will be considered instinctive when it is performed even without having any basis of any prior learning of experience. Therefore, it is considered to be expressing innate, biological factors of a living being. Instincts are inborn complex patterns of behaviour that exist in most members of the species, and should be distinguished from reflexes, which are simple responses of an organism to a specific stimulus, such as the contraction of the pupil in response to bright light or the movement of the lower leg when the knee is tapped.

According to *Encyclopaedia Britannica*, it is '...an inborn impulse or motivation to action typically performed in response to specific external stimuli. Today instinct is generally described as a stereotyped, apparently unlearned, genetically determined behaviour pattern.'

Ross defines instinct as, 'An inherited or innate disposition which determines its possessor to behave in a certain specific way in relation to certain specific objects.'

C. W. Valentine states that instincts are, 'Some innate tendencies to notice and be interested in certain kinds of impressions and to act in response to them in a way not prompted by experience.'

In the words of William James, 'Instinct is usually defined as the faculty of acting in such a way as to produce certain ends, without foresight of the ends and without previous education in the performance.'

Over the past, instinct as a term has been used for various distinct conceptions associated with animal behaviour. In the 1st volume of *A Dictionary of Mechanical Science, Arts, Manufactures, and Miscellaneous Knowledge* (1829), Alexander Jamieson defined instinct to be 'an appellation given to the sagacity and natural inclinations of brutes, which supplies the place of reason in mankind.'

For instinctive behaviour, the most basic example would be some fixed action pattern (FAP), that would have extremely short to medium length action sequences, without variation, conducted as a response to a stimulus that is clearly defined.

Instincts can be looked upon as being complex, inborn behavioural patterns which most members of a species possess. These are not reflexes. A reflex is nothing more than a response that an organism displays to a particular stimulus, like jerking back of hand when it comes in contact with something hot. We must not confuse the non-presence of volitional capacity with lack of ability to change fixed action patterns. Consider an example: it is possible that people change or modify a stimulated fixed action pattern while recognizing consciously at what point it gets activated and then just stopping to do that. But for animals who do not have a strong volitional capacity, it might not be possible to disengage themselves from their fixed action patterns, after they get activated.

1. Instinct in biology

Entomologist Jean Henri Fabre is of the opinion that instinct is any such behaviour for whose performance there is no need for consciousness or cognition. Fabre got his inspiration from the vast and intense study that he had conducted with insects, and the behaviour of some of these insects he erroneously took to be not influenced by changes in climate but to, rather, be fixed.

It was during the 1920s that the concept of instinct fell out of favour. This was because behaviourism was gaining ground and thinkers like B. F. Skinner were of the

opinion that most of the behaviour which is in any way significant is learned behaviour. Beliefs, like the one put forth by Fabre which said that most behaviours were simply reflexive and too simplistic in nature to be able to explain complex social and emotional behaviour of human beings.

Again, during the 1950s, there was re-emergence of interest in innate living beings. It came about due to Konrad Lorenz and Nikolaas Tinbergen, who brought out the distinction between learned behaviours and instinct. The understanding that we have in the current times of instinctual behaviour in animals, largely stems from the work done by the two of them. For example, Konrad Lorenz got his boots imprinted by a goose. Then on, the goose began to follow the boots, no matter on whose feet they were. While the identity of the goose's mother was a learned one, yet the behaviour of the goose with respect to the boots was instinctive.

2. Instinct in psychology

It was in the 1870s that the field of psychology made use of the term 'instinct'. The first one to use it was Wilhelm Wundt. As 19th century came to a close, it was accepted that behaviour that was repeated was instinctual behaviour. The literature written during that period shows that more than 4000 instincts related to human beings were recorded by researchers and they used the term 'instincts', to mean any and every repetitive behaviour. With terms taking on definite meaning and research becoming more thorough, researchers looked at instinct as an explanation for human behaviour. In 1960, a conference was held which was chaired by Frank Beach, a pioneer in comparative psychology, and in attendance were several luminaries of the field. During this conference, the term instinct was officially restricted in its application. Through 1960s and 1970s, textbooks did carry discussion on instincts with reference to human behaviour. A survey made of the books of the year 2000, showed that of the 12 best selling textbooks on Introductory Psychology, there was just one that made a reference to instincts, and this reference was also with respect to Sigmund Freud's referral to the *id* instincts. In this respect, it would appear that instincts is now looked upon as becoming more and more superfluous when one tries to understand psychological behaviour of human beings.

It was argued by psychologist Abraham Maslow, that human beings do not have instincts now as humans have developed an ability to override instinct in certain situations. According to him, that which is referred to as instinct is at times defined imprecisely, and is in most cases not strong drives. Maslow believed that it is not possible to override instinct, and in that respect, though the term could be applicable to human beings in the older times, today it does not hold good.

The 1961 book named *Instinct* was the one that instituted several criteria which would create distinction between instinctual and behaviours of other types. For a behaviour to be seen as instinctual, it needs to be the following:

- Automatic
- Irresistible
- Occur at some point in development
- Be triggered by some event in the environment
- Occur in every member of the species
- Be unmodifiable
- Govern behaviour for which the organism needs no training (although the organism may profit from experience and to that degree the behaviour is modifiable).

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Reflexes and instinct

If we search, for examples, behaviours which does not need conscious effort, will be looking at several reflexes. For a reflex, the stimulus might not need activity from the brain, but it might go all the way to the spinal cord in the form of a message which then will be sent back through the body, creating a path that is referred to as reflex arc. We can look at reflexes as being similar to fixed action patterns (FAP) since majority of the reflexes meet the criteria of a FAP.

Nevertheless, in the case of a fixed action pattern, it is also possible for the brain to process it. An example of this is the instinctive aggression during the mating season of a male stickleback for all things that are red. In humans, some instinctive behaviours are of primitive reflexes, like suckling and rooting.

Maturational instincts

There are some instinctive behaviours which are dependent on the onset of maturational processes. To take an example, there is reference to birds 'learning' to fly. Nevertheless, there have been experiments in which young birds were reared in such a manner with devices which prevented them from moving their wings, right up to their attaining the age at other birds of their species. The birds being experimented were able to immediately fly normally when they were set free, displaying that it was not learning, but neuromuscular maturation to which we must attribute their improvement.

3. Instinct in evolution

Imprinting is an example of instinct. Imprinting is seen as a complex response which combines in itself olfactory, auditory and visual cues present in the environment which surrounds an organism. There are cases in which an offspring is attached to its parents by imprinting, and this is considered as being a reproductive benefit for survival of offspring. For an offspring who has parental attachment, will stay close to the parent and will, therefore, be under the care and protection of the parent. Offspring who are attached to a parent have greater chances of learning from the one they are attached to since they have close interaction with that parental figure.

An important factor that greatly affects how innate behaviour will evolve is environment. Michael McCollough, a positive psychologist, in one of his hypothesis provides that some human behaviours like revenge and forgiveness are greatly affected by the role played by environment. In this hypothesis, he theorizes that in the various social environments, human behaviour will be moulded as having either revenge or forgiveness as the prevalent trait. Even though this game theory's psychological example does not comprise any real results that are directly measurable, it does put forth an interesting theory of unique thought. If it is looked at with a standpoint that is more biological, the limbic system is the main control area for response to certain stimuli, which includes a variety of instinctual behavior. It is in the limbic system that the processing is done for external stimuli related to motivation, social activity and emotions, which transmits a behavioral response. Some of the behaviours would be social hierarchy, defense, aggression and maternal care. All of these behaviours are affected by the various sensory input like smell, touch, sound and sight.

There are many angles that can be used to investigate the phenomenon of instinct. Some of these angles are: environment, nervous pathways, limbic system and genetics. There exist several levels of instincts, right from molecular to groups of individuals, which are possible to study. There has been the evolution of systems that are extremely specialized

and have created such individuals who display behaviours that they have not learned. It is true that innate behaviour is the biological world's one such aspect which is both interesting and important and with which people come in contact with on a daily basis.

6.3 INSTINCTS ACCORDING TO McDUGALL

William McDougall, born on 22 June 1871 and died on 28 November, 1938 was a psychologist who was opposed to the concept of behaviorism. He remained on the outside of the mainstream of the development of Anglo-American psychological thought during initial years of 20th century.

William McDougall was probably the most influential advocate of instinct as far as the discipline of psychology is concerned. His work, titled *Introduction to Social Psychology* (1908), is looked upon as being amongst the first textbooks of social psychology. In this work, William McDougall used a concept of instinct as being the basis of a highly comprehensive and persuasive theory of behaviour. This theory has the credit for having provided two distinct achievements: it has created an elegant and novel amalgamation of the subject matter of psychology and based on biological principles, it has managed to provide to psychology the status of a natural science. For this purpose, the biological principles that have been employed belong to Darwinism. At the very core, the thinking of McDougall regarding instinct was the conception that considered instincts to be systems that were hereditary and has unitary behaviour and their driving force lay in the internal goal-directed impulses. McDougall added on the then existing traditional (particularly Kantian) concept of the three part division of mind containing the faculties of willing, feeling and knowing. His definition of instinct was, 'an inherited or innate psycho-physical 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 action' (McDougall 1908, p. 25 in the 1936 edition).

In his theory, instincts are composed of three parts: perception, behaviour and emotion. Human beings have a perceptual predisposition to focus on stimuli that are important to his goals. For example, people pay attention to food odours when hunger instincts are involved. McDougall listed seventeen instincts in 1932, including hunger, rejection of particular substances, curiosity, escape, pugnacity, sex, maternal/paternal instinct, gregariousness, self-assertion, submission, construction, acquisition, crying out or appeal, laughter, comfort, rest or sleep, and migration.

A tripartite division of neurophysiological systems was also in existence at that time and McDougall took that division to fit in with his own as the obvious step of locating the cognitive aspect (knowing) of instinct in sensory pathways, the affective aspect (feeling) in associative pathways, and the conative aspect (willing) in motor pathways. Therefore, the connections that existed amongst an instinct's three parts were looked upon as being neural, but according to McDougall the dynamics of instinct, unlike in the case of reflexes, were not completely mechanical. William McDougall was insistent in his belief that instinct was a system that was psychophysical by nature, meaning that in the process of determining of any instinctive action a huge role is played by mental phenomena, such as impulse, awareness and the awareness of feeling.

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1. What are instincts?
2. How is instinct different from reflex?

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With respect to instinct, William McDougall advocated that instincts hold the ability to be moulded and changed during an individual's life time, but only within limits and these limits will vary from one species to another. Nevertheless, this possibility of modification due to the various experiences that a living organism has, is limited to only to conation and cognition (1908, p. 29 in the 1936 edition). Therefore, identification of the distinct primary emotions is one valid method of discovering what, and how many instincts there are. William McDougall is of the opinion that it is necessary to have this kind of analysis of instincts prior to being able to make any significant progress in the understanding of the nature of complex secondary or derived patterns of mental phenomena or behaviour. McDougall put forth a list of all that which was considered by him to be the primary emotions and, therefore, the principal instincts in human beings. He made use of the Darwinian principles to justify the list he had created by reference to each of those instincts' probable adaptive significance, and hence evolutionary basis.

The success that McDougall achieved made instinct a thing of significance and possibly also fashionable, and it did the same for several other psychology related Darwinian ideas. In psychological writings the lists of instincts multiplied manifold, this concept rooted itself in several other fields also, like in the study of wars and in economics. Nevertheless, with the multiplication of the lists there was a parallel multiplication in the variety of the lists. Writers began to use their own criteria for the basis of the lists and these could be like the characteristic behaviour patterns of a number of species, purposive behaviour patterns, primary emotions, to name a few.

It is opined that it was William McDougall himself and his practice which was responsible for such a vague and indiscriminate application of instinct against which he himself has put forth strong argument in his own book's introduction. McDougall's theory suggested that other than reflex, each and every behaviour is instinctive or at least its very basis lies in instinct. Furthermore, the concept of instinct as per McDougall seemed to make a bridge available between a minimum of two types of explanation of behavior: explanation in terms of intentions and actions and explanation in terms of causes and effects.

6.4 EMOTION: MEANING AND DEFINITION

Emotion can be defined as a feeling, an aspect of consciousness characterized by a certain physical arousal, a certain behaviour that reveals the feeling to both the outer and the inner world. Emotions can be pleasant as well as unpleasant, when we are angry and afraid we get an unpleasant feeling, when we are delighted we get a pleasant feeling. There are the following aspects to emotions:

- **Cognitive aspects:** These emphasize the importance of cognition and thinking in the determination of emotion.
- **Physiological aspects:** When we experience any emotion, there is an arousal created by the sympathetic nervous system; for example, the heart rate increases, breathing becomes more rapid and the pupils dilate.
- **Behavioural aspects:** The behaviour of a person also changes, like there are facial expression, body movement and actions that indicates the feelings of a person.

Expression of Emotion

We reveal our felt emotions in bodily responses and express behaviour. Facial expression—frowns, smiles and sad expression—combined with hand gesture—the turning of one’s body—and spoken words produce an understanding of emotion. We fight, run, laugh, yell, along with countless other action stemming from the emotions we feel. There are individual differences found in the expression of emotions. The expression of the emotions not only communicates, but also intensifies the felt emotion. It also activates the body to respond accordingly. In India, the expression of emotions was introduced by sage Bharata during the 5th century. Eight major emotions were described in *Natyashastra*. Later, they were translated into ‘rasa’, which means aesthetic relish. Now, we will discuss the important forms of emotional expression.

Each emotion has its characteristic facial expression. Facial expression can vary across different cultures, although some aspects of facial expression seem to be universal. Charles Darwin (1998) was one of the first to theorize that emotions were a product of evolution and, therefore, universal; all human beings, no matter what their culture, would show the same facial expression because of the facial muscles evolved to communicate specific information to onlookers. Researchers believe that although the facial expressions appear to be universal, exactly when, where and how an emotion is expressed may be determined by the culture. There are display rule which vary from culture to culture (Ekman, 1973).

According to the facial feedback hypothesis, expressions can reflect emotions as well as influence them. Facial muscles signal the brain that helps us in recognizing the emotion we are experiencing (Keillor and others, 2002). For example, we feel happier when we smile and sadder when we frown. Support for this hypothesis comes from an experiment by Ekman and his colleagues (1983). Following are the key forms of emotional expressions:

- **Facial expressions:** Every emotion has its characteristic facial expression. The nose, lips, eyes and forehead take different forms by twitching and twisting. Three dimensions of emotional expression are shown by the facial expressions.
 - o **Pleasantness-unpleasantness:** Facial muscles evolve to communicate specific information to onlookers. For example, happy face expresses the feeling of smile and laughter; whereas, sad face represents the expression of unpleasant feeling.
 - o **Attention-rejection:** Attention in the facial expression is shown through the muscles as they expand, like the eyes and the mouth opens up. Contraction of eyes, lips, and nostril are the best example of rejection.
 - o **Sleep-tension:** Level of relaxation depicts through sleep condition where as angry and excitement represents tension.
- **Startle response:** Alarm reaction or startle reflex, is the body’s and mind’s response to an unexpected and sudden stimulus, like a loud noise (acoustic startle reflex), a flash of light and a sudden movement near the face. Our reactions include physically moving away from the stimulus. These reactions could be contraction of the arm and leg muscles and often blinking. It also includes breathing changes and blood pressure respiration. This is an inborn response.
- **Vocal expressions:** Emotion also expressed with the help of voice, trembling and breaking of voice can be noticed when we are sad or upset. We groan when we are in pain and become loud and high-pitched when we are angry.

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- **Gestures and postures:** The postures and gestures that we display show joy and sorrow and they are different in both the cases.. In sorrow the face slumps down while in happiness we hold the head high and have an upright posture. When we are angry, we show an aggressive behaviour and in fear we are either rooted to the spot or run from it.

Dimensions of Emotion

Robert Plutchik (1980) believes emotions have four dimensions, which are as follows:

- (i) They are positive or negative
- (ii) They are primary or mixed
- (iii) Many are polar opposites
- (iv) They vary in intensity

Let us take an example. Let us think about the ecstasy when we get an unexpected 'A' in a test or our enthusiasm about a football game the next weekend—these are positive emotions. In contrast, we feel negative emotion, like grief, when someone close to us dies, or anger when someone verbally attacks us. Positive emotions enhance our self-esteem; negative emotions lower our self-esteem. Positive emotions improve our relationships with others; negative emotions depress the quality of those relationships.

Plutchik believes that emotions are like colours. Every colour of the spectrum can be produced by mixing the primary colours. Happiness, disgust, surprise, sadness, anger, and fear are candidates for primary emotions. Combining sadness and surprise produces disappointment. Jealousy is composed of love and anger. Plutchik developed the emotion wheel to show how primary emotions adjacent to each other produce other emotions. It must be noted that some emotions are opposites—love and remorse, optimism and disappointment. Theorists, such as Plutchik, view emotions as innate reactions that require little cognitive interpretation—an evolutionary perspective.

6.4.1 Classification of Emotions

Emotions can be classified into two broad dimensions—adaptive/positive and disruptive/negative. Positive affectivity (PA) refers to positive emotions, such as joy, happiness, love, and, interest. Negative affectivity (NA) refers to negative emotions, such as anxiety, anger, guilt, and sadness. Positive emotions facilitate approach behaviour (Davidson, 1993; Watson, 2001; Watson and others, 1999). In other words, positive affect increases the likelihood that individuals will interact with their environment and engage in activities that are adaptive for the individual, its species, or both. Positive emotions can broaden people's horizons and build their personal resource. For example, joy increases by creating the urge to play, push limits, and be creative, interest broadens by creating the motivation to explore, absorb new information and experiences, and expand the self (Csikszentmihalyi, 1990; Ryan and Deci, 2000).

There is increasing interest in the role that positive affectivity might play in wellbeing (Frederickson, 2001); for example, positive emotions appear to improve coping. In one study, individuals who experienced more positive emotions than others developed broad-based coping strategies, such as thinking about different ways to deal with a problem and step back from the situation and being more objective (Frederickson and Joiner, 2002). In some cases, positive emotions—such as joy, happiness, love, and interest—may override, or undo the lingering effects of negative emotions—such as sadness, anger, and despair (Diener, 1999; Fredrickson, 2001). For example, mild joy and

contentment have been found to undo the lingering cardiovascular effects of negative emotions, such as sadness (Frederickson and Levenson, 1998). To sum it all, positive emotions are likely to serve important functions in an individual's adaptation, growth and social connection. By building personal and social resources, positive emotions improve people's wellbeing.

One aspect of positive emotion that is increasingly being studied is happiness. Psychologists' interest in happiness aims at the positive ways in which we experience life, including cognitive judgments of our well-being (Diener, Lucas, and Oishi, 2001; Locke, 2002). In other words, psychologists are trying to find out what makes us happy and how we perceive our happiness. Recent research reviews indicate that the following factors are linked with happiness (Diener and Seligman, 2002; Diener and others, 1999):

- Psychological and personality characteristics, like high levels of self-esteem, optimism, extraversion, and personal control
- A supportive network of close relationships
- A culture that offers positive interpretations of most daily events
- Being engaged by work and leisure
- A faith that embodies social support, purpose, hope, and religious attendance

The importance of close relationships in happiness was documented in a recent study of what makes college students happy (Diener and Seligman, 2002). College students were divided into three groups, viz., very happy, average, and very unhappy. The very happy college students were highly social, were more extraverted, and had stronger romantic and social relationships than the less happy college students.

Negative emotions, such as fear, facilitate withdrawal behaviour and thus carry direct and immediate adaptive benefits in situations that threaten survival. Positive emotions tend to broaden a person's attention; negative emotions, such as anxiety and depression often narrow attention even in no threatening situations (Basso and others, 1996).

Characteristics of emotions

The chief characteristics of emotions are as follows:

- The emotional experiences are associated with some instincts or biological drives.
- Emotions, in general, are the product of perception.
- The core of an emotion is feeling, 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.
- Every emotional experience involves several physical and psychological changes in the organism. Some of these changes like the bulge of the eyes, the flush of the face, flow of tears and pulse rate can be easily observed. There are also internal physiological changes like circulation of blood, the impact on the digestive system and the changes in the functioning of some glands.
- Emotions are frequent.
- Emotions are expressed in relation to the concrete objects or situations.
- Emotions are temporary.
- Emotional expressions in early childhood are intense irrespective of the intensity of the stimulus. Small children fail to hide their emotions and express them indirectly

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3. What is emotion?
4. What are the two dimensions of emotion?

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through different activities like crying, nail-biting, thumb-sucking and speech difficulties.

- Emotions are prevalent in every living organism.
- Emotions are present at all stages of development and can be aroused in young as well as in old.
- Emotions differ from person to person.
- Same emotion can be aroused by a number of different stimuli objects or situations.
- Emotions rise abruptly but die slowly.
- 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/her subordinate may be transferred in beating the children at home
- One emotion may give rise to a number of likewise emotions.

Simple and complex emotions

Grief and joy are examples of simple types of emotions while love and hate are complex types of emotions.

Grief is an emotional state that you find yourself in when your desires are not fulfilled. Contraction of the chest, tears, crying, fainting, and sobbing are some of the expressions of the emotional state of grief.

Joy is the opposite of grief. Joy is reflected by expansion of chest, lighting up of face, dancing and clapping. It is the state caused by the fulfillment of your desires. Success after conflict brings joy.

Love is a complex emotional state. It is a combination of sympathy, affection and sexual feelings. It is sometimes manifested as a permanent emotional tendency as in the case of a mother's love for her child. It is also transformed into a sentiment.

Hate is also a complex emotional state. It includes anger, fear and apathy. You become angry when you see a person you hate. Sometimes, you are afraid of them and want to stay away from them.

Internal bodily changes during emotions

During strong emotions, many changes occur in the body. These changes are interesting and help to explain many of the varied reactions that the emotionally aroused person displays.

- **Change in heartbeat:** The heartbeat increases when we are agitated and also when we are excited. Generally, the heart beats faster or slower if the individual is disturbed. The face is flushed or the blood shoots up in anger, because the alternate contraction and expansion of the blood vessels sends an excess of blood to that part of the body.
- **Blood pressure changes:** Blood pressure increases because of emotions. In some cases of shock, fear, and excitement, the blood pressure may also go down. The volume of blood, in case of extreme situations, also goes up as the large arteries contract driving blood towards the skin. The resulting flush is one of the signs of emotion.

- **Change in galvanic skin response:** There are significant changes in the electrical or galvanic skin responses. The hair tends to stand on end causing goose flesh. The sweat glands of the skin secrete excessive amounts of perspiration or the well-known cold sweat. The additional acid changes the galvanic or electric response of the skin.

Unlike the sweat glands, the salivary glands are inhibited by emotion. The saliva is not secreted which results in a dry mouth feeling when a person is emotionally disturbed.

- **Chemical changes in the blood:** Due to a change in emotional state, the secretion of adrenaline takes place from the adrenal gland, which puts more sugar in the blood. There is more sugar in the urine also. Adrenalin makes the heart beat faster, makes the liver release sugar into the blood for muscular energy and increases the ability of the blood to clot quickly. Thus, it actually reinforces all of the other effects.
- **Changes in respiration rate:** We all must have experienced that when we are extremely excited, we run out of breath. When a person is very sad, he or she cries and after some time, starts feeling breathless. Thus, emotions cause changes in the rate of respiration.
- **Metabolic changes:** Digestion process also changes because of emotions. Many studies have proved that under the current of emotions, our stomach and intestine work quite slowly and sometimes even become inactive. Secretion of digestive glands, including saliva, is also decreased resulting in the malfunctioning and inactivity on the part of digestive system. That is why extremely emotionally charged individuals are mostly found to suffer from the malfunctioning of their digestive system.

External physical changes

The emotions can be assessed on the basis of external physical changes. When we are extremely happy, our face lights up but when we are in grief, our eyes are filled with tears.

- **Facial expression:** When under the influence of emotion, the facial expression of a person is the first to be altered. Crying, smiling, compressing the lips wrinkling the nose, shaking head from one side to another are emotional responses which actually reveal the presence of particular feelings in a person. It is commonly said that every emotion has its own particular facial expression. While the way of expressing emotions may vary from culture to culture, some expressions remain common throughout. For example, we frown when we are angry and smile when we are happy.
- **Vocal expression:** Emotions are also expressed through voice. If a person is angry, his or her voice is different from the person who is expressing his or her love. Thus, emotions can be distinguished by hearing one's voice. Laughing, weeping, whistling, murmuring, hesitation, talking in sweet and loving manner actually reflect various types of emotions a person is experiencing. However, it is not always a reliable method of assessing the emotions.
- **Postural expression:** When a person is emotionally aroused, the facial expressions and voice change. Also, when a person is afraid or frightened of something, he or she trembles, hides or runs away. Rubbing hands, standing erect, sitting with head down are all indicative of some emotional state.

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- **Polygraph or lie detector:** Most of the bodily functions that occur because of some emotional state cannot be controlled by the will of an individual. The inner bodily functions cannot be changed by a person. Thus, it can be deduced that the most reliable sign of an emotional state is the body changes. A machine called polygraph has been devised to detect the slightest variation in blood pressure, pulse rate, breathing rate and skin electricity. This machine is called polygraph because it plots a graph of each of these varying parameters. It has the ability to detect mild degrees of emotion. It is used as a lie detector because it is believed several bodily changes occur when a person is lying. The people who tell lies do so out of fear. In this condition, the heart beats faster, adrenalin is secreted into the blood, the skin flushes, the mouth becomes dry, the skin sweats and the blood pressure shoots up. The polygraph does not actually detect whether a person is lying or not, it measures physiological changes that occur because of lying.

The method adopted in conducting a polygraph test is as follows. First, the subject is asked certain questions in a relaxed manner. These questions serve as the basis of assessing other responses. The examiner conducting the polygraph test frames two types of questions; one type of questions is neutral while the other type of questions is critical. It is found that if the subject is guilty, then the physiological changes occur in relation to the responses to critical questions.

Though the polygraph machine is used as a lie detector, it is not fully reliable. If an individual becomes very nervous while answering questions, then he or she is not actually lying.

6.4.2 Effects of Emotions

Emotions have a profound effect on the life of an individual. They can make or mar one's life. There are two types of effects of emotions which are described below.

Good effects of emotions

- **Source of motivation:** Emotions work as motives which drive the organism for an action. Love, fear, anger and curiosity may help us to achieve our goal. Classical stories are evidences when young men sacrificed their lives for their beloved. Fear of failure motivates one to study hard for the examination. Emotions prove a motivating agent to further our action towards goal.
- **Source of enjoyment:** Pent-up emotional feelings and routine activities create monotony in the individual. Emotions, particularly positive, add enjoyment in our life. They add excitement. Adolescents read novels and watch movies, theatres and TV, which overcome the deficiency of emotional excitement.
- **Source of strength and endurance to body:** Emotions give strength to our body. An individual can do unusual work under emotional excitement which appears difficult in normal conditions. For example, an individual chased by a dog can jump a 5 feet high wall which he cannot jump in normal conditions. Emotions give strength and endurance to our body. Fatigue does not set in during the emotional state. If a child loves his subject, he can work hours together without any sign of fatigue.
- **Media of communication:** Emotions serve as an effective media of communication between individuals.

Bad effects of emotions

The most damaging effect of emotions is on the physique of the individual. Constant emotional tension may cause lack of sleep, restlessness, headache, chronic fatigue, insomnia and lack of appetite.

Kuhlen in 1952 conducted research on the effects of continuous emotional tension. It also affects the memory. Forgetfulness increases in emotional state. The individual cannot reason, think and concentrate on a problem. Constant emotional pressure disturbs learning ability. Fear and anger cause the most powerful effect on thought process—moodiness and irritability. They bring change in our attitudes towards life. Negative emotional experiences for a long period disturb the total personality of an individual and may lead to neuroticism.

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6.5 THEORIES OF EMOTION

There are various theories of emotions. The most well-known among those are discussed in the following sections.

6.5.1 James-Lange Theory

James-Lange theory of emotion was developed after the name of the psychologist William James and the physiologist G. G. Lange (1884–1894). According to this theory, the perception of an object is followed by the disturbed bodily activities and the bodily activities are followed by the confused sensation. A person becomes aware of this sensation in a state of fear and anger. James has pointed out that we do not run because we are afraid, we are afraid because we run; for example, the fear of snakes is not immediately followed by the fear of a snake. The perception would first produce the activity of jumping or running, together with some other activities inside the body like rapid blood circulation or quick breathing. These activities stimulate the receptors that lie inside the body—the kinesthetic receptors and the organic receptors. Influences from these receptors reach the brain and produce mass kinesthetic and organic sensation. This mass sensation constitutes our experience of fear. Thus, the state of fear, anger, or other emotions that a person experience, according to this theory, is a confused mass sensation produced by the disturbed activities of the organism.

What about people who have spinal cord injuries that prevent the sympathetic nervous system from functioning? Although James-Lange would predict that these people should show decreased emotion. The arousal studies of people with spinal cord injuries report that these people are capable of experiencing the same emotions after their injury as before, sometimes even more intensely (Bermond et al., 1991; Chwalisz et al., 1988).

6.5.2 Cannon-Bard Theory of Emotion

Physiologists Walter Cannon (1927) and Philip Bard (1934) theorized that the emotion and the physiological arousal occur more or less at the same time. Cannon, an expert in sympathetic arousal mechanisms, did not feel that physical changes caused by different emotions were distinct enough to allow them to be perceived as different emotions. Bard expanded on this idea by stating that the sensory information that comes into the brain is sent simultaneously (by the thalamus) to both cortex and organ of sympathetic nervous system. The fear and the bodily reactions are, therefore, experienced at the

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5. What are the two main types of emotions? Give examples.
6. State any two good effects of emotion.

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same time—not one after the other. For example, a person is afraid and running and aroused.

This theory, also had its critics. K. S. Lashley (1938) stated that the thalamus would have to be pretty sophisticated to make sense of all the possible human emotions and relay them to the proper areas of the cortex and body. It would seem that other areas of the brain must be involved in processing emotional reactions. The studies of people with spinal cord injuries, that seemed to suggest that emotions can be experienced without feedback from the sympathetic organs to the cortex and cited as a criticism of the James-Lange theory, seemed at first to support the Cannon-Bard version of emotions. People do not need feedback from those organs to experience emotion. However, there is an alternate pathway that carries information from these organs to the cortex; this is the vagus nerve—one of the cranial nerves (LeDoux, 1994). This makes the case for Cannon-Bard a little less convincing.

6.5.3 Two-Factor Theory of Emotion

According to the two-factor theory of emotion developed by Stanley Schachter and Jerome Singer (1962), emotion is determined by physiological arousal and cognitive labelling. They argued that we look at the external world to find an explanation as to why we are aroused; for instance, if we feel good at someone's pleasant comment, we may call the emotion 'happy'. If we feel bad after doing something wrong, we may call the feeling 'guilty'. To test their theory, epinephrine was injected into the volunteer participants by Singer and Schachter (1962). Epinephrine is a drug that produces high arousal. Then the volunteers were made to observe others behave in either an angry way (stomping out of the room) or a euphoric way (shooting papers at a wastebasket). As predicted, the volunteers' cognitive interpretation of their own arousal was influenced by the angry and euphoric behaviours. They said that they were happy when they were with a happy person, and angry when they were with an angry person. However, this effect only occurred when the volunteers were not aware of the injection's true effects. When they were informed that the drug would make them jittery and increase their heart rate, they said that the other person's behaviour was the reason for their own arousal. Psychologists have faced difficulty replicating Schachter and Singer's experiment, but in general, research supports the belief that misinterpreted arousal intensifies emotional experiences (Leventhal and Tomarken, 1986).

6.6 EDUCATIONAL UTILITY OF INSTINCTS AND EMOTION

We have already seen that over the years the term instinct has come to mean native behaviour as contrasted with what is learnt or acquired. In the case of instinctive behaviour, the individual performing it had no fore or prior knowledge of what action he would take. It has also been established that instinctive behaviour is directed towards the attainment of such ends and results which will be useful to the individual and to the race.

6.6.1 Use of Instincts in Education

There several instincts in human beings which prove to be extremely useful in the sphere of education. Let us look at some of these and the way in which they can prove to be useful.

Check Your Progress

7. What does the Cannon-Bard Theory suggest?
8. What does the two-factor theory of emotion suggest?

- **Pugnacity:** Human instinct of combat or pugnacity is considered to be of universal motive. Any child who is put under restraint and his movement is stopped will begin to cry as loud as possible and the child's face will turn all red. Conflicts start, for example, as soon as fun is made of some individual who is irritable. It is known that the very activity of conflict will begin as soon a motive is seen to be remaining unfulfilled via an external agency.
- **Parental instinct:** This instinct combines in itself the emotion that we know as pity. The parental instinct is seen to manifest itself in the expressions of love of children who are older for the younger counterpart as also for other living creatures.
- **Escape:** The escape instinct and the emotion of fear are conjoined. It is possible to arouse the feelings of disgust and fear towards all things bad and conversely, towards things that are unnecessary learns to keep away the instinct of escape and fear from acting up.
- **Curiosity:** From the point of view of education, curiosity is looked upon as being the instinct which is most important. This instinct is a fundamental one and there is no definite biological basis for it. When any living being is confronted with any new or unrecognized object, it is natural for it to desire a complete knowledge or understanding of it. In human beings, curiosity comes along with the sense of surprise. Nearly every individual has the desire for the new. For example, seeing new places, learning new things and meeting new people. This desire to know new things can be exploited by educationists to further the knowledge of individuals.
- **Gregariousness:** It is by their very instinct that children are gregarious and they naturally wish to stay in their friends' group. Children are not desirous of being alone or in solitude. This instinct can be well utilized by teachers to further a child's social development. It becomes important for a teacher to maintain a close supervision of groups to be able to immediately see all of the different group tensions that evolve in the institution and also work towards evolving amongst the children the qualities of team spirit, co-operation and healthy competition.
- **Self-submission:** While on the one hand, the self-submission instinct could cause great hindrance in the development of a child, yet it is possible for an instructor who is alert to mould it in such a way that it takes on the form of respect towards the instructor and a positive and healthy regard towards general discipline.
- **Self-assertion:** Self-assertion as an instinct is a significant part of the character of an individual. It comes conjoined with the sentiment and emotion of self-respect that makes a child desirous of steering away from all such activities that appear to him to be undesirable. It makes the child desirous of putting all energies into such activities that are desirable. For a child to develop self-respect, it is important that the instructor use with the child only those examples that come from the environment which is familiar to the child.
- **Food seeking:** The instinct of food seeking is one that can easily be applied to various extremely fruitful activities when it is employed indirectly by the instructor for instigating the student into making greater effort towards his study. This can be done by inspiring the student, for example, with images of his being successful in his future livelihood.

Now, let us look at how education of learning is affected by emotions.

John Dewey was a believer in the development of the whole child. Despite what instructors might desire, the systems in schools across India and even in other nations,

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steers education in the direction of activities whose concentration is measurable rational qualities. And in this manner, the ability of a child to spell accurately is measured rather than focusing on and measuring the child's emotional well-being. The first areas in a child's school curriculum to be removed when so is the need are those which are expressive and not easily measured, like the various arts.

In the field of education, emotion holds a vital place. Emotion is the driver of attention, attention drives both memory and learning. In schools, there is not proper regulation of emotion due to its lack of understanding by those who need to regulate it. Mostly, the way that emotion is treated is that if there is too little of it or there is too much of it is put down as being misbehavior. It is rare to see emotional comfort as being made part of a school curriculum or the environment of a classroom. Also, in institutes of learning, there is a lack of addressing the link between a classroom that is emotionally positive as well as stimulating and the overall health of staff as well as the students.

The developments that are happening in the current times in the field of cognitive sciences are bringing out where and how emotions are processed in the human brain/body. Such a fusion of the psychology and biology of emotion is capable of providing highly potent applications in education.

The current emotion research and theory have thrown up fewer answers than questions. Nevertheless, it is important for educators to obtain a fundamental knowledge of the psychobiology of emotion so that they have the capability of evaluating the various applications of the same that are and will continue to come up in the field of education.

Classroom Applications

Despite the fact that the educational research's educational applications still remain rather tentative, various general themes have certainly become apparent along the lines of the perspective held and advocated by several educators.

Let us look at a few of the general principles and how they can be applied in a classroom.

- People do not learn emotions, emotions just exist within people. They cannot be changed easily. It is important to not ignore the emotions that rise. It is possible for students to learn how they can and when they should make use of some rational processes to override their emotions, or to hold them in check. *We should seek to develop forms of self-control among students and staff that encourage nonjudgmental, nondisruptive (and perhaps even inefficient) venting of emotion, which will normally have to happen prior to the taking over of reason. Every human being is able to recall past incidents that will still lead to feelings of anger since at that time they were prevented from freely expressing their feelings before a decision was imposed on us.*

It is not a difficult proposition to integrate emotional expression in classroom life. One way to do this is to drawing the class into a tension-releasing circle (after a playground fight, for example) and playing a game of circle tag before talking out the problem. Once the students' collective limbic systems have had their say, rational cortical processes can settle the issue. If that doesn't work, sing a song. According to the British playwright William Congreve, 'Music hath charms to soothe a savage breast.' To elaborate, when in the process of solving a problem, keep the dialogue going while providing emotional input continuously.

- According to Saarni and Harris (1991), even though they are unable to articulate it, majority of the students are rather knowledgeable regarding the complexity of emotions and the ways in which others and they themselves experience them. It is suggested, '*Schools should focus more on metacognitive activities that encourage students to talk about their emotions, listen to their classmates' feelings.*' They also need to consider the motivations of the other persons who come into their curricular world. To take an example, using the word 'why' in a question is capable of moving a discussion towards emotions and motivations and away from just bare facts. 'Why' was Bahadurshah Zafar sent to Rangoon? is a much more emotionally loaded question than Where was Bahadurshah Zafar exiled by the British?
- It is a proven fact that such activities which lay emphasis on the engaging of the complete body and also stress on social interaction are the ones to provide the greatest amount of emotional support. Some examples of such activities are arts, physical education, co-operative learning, interactive projects, field trips, discussions and games. Even though it has been known for a while now that activities of this nature provide enhancement to student learning, yet they are looked upon as being special rewards, and they are generally withdrawn in such cases where misbehavior of students is seen or in cases where budgets are dwindling. At times these types of activities are altogether removed.
- Since memories tend to be contextual, such school activities that will draw out emotions in a student, activities such as cooperative projects, role play and simulations, could be able to provide significant contextual memory prompts which could come to the aid of the students to recall the information in the event of similar or closely related events in the real world. One example is of the fire drills that are performed in an emotionally charged setting and in an unannounced manner so that they can be replicated in the future when a fire will cause just such a situation.
- If the atmosphere of a school is stressful emotionally, it will prove to be counterproductive due to the fact that it will greatly reduce the ability of the students to learn. The feeling of a sense of control within the environment that one is in and a feeling of self-esteem are factors that play a key role in stress management.

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6.7 SUMMARY

- Instinct is what we call innate behaviour and it is a living organism's inherent inclination to a specific complex behaviour.
- Instincts can be looked upon as being complex, inborn behavioural patterns which most members of a species possess. These are not reflexes. A reflex is nothing more than a response that an organism displays to a particular stimulus, like jerking back of hand when it comes in contact with something hot.
- There are many angles that can be used to investigate the phenomenon of instinct. Some of these angles are: environment, nervous pathways, limbic system and genetics.
- McDougall used a concept of instinct as being the basis of a highly comprehensive and persuasive theory of behaviour. This theory has the credit for having provided

Check Your Progress

9. State any three instincts that help in education.
10. What do you mean by parental instinct?

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two distinct achievements: it has created an elegant and novel amalgamation of the subject matter of psychology and based on biological principles, it has managed to provide to psychology the status of a natural science.

- In McDougall theory, instincts are composed of three parts: perception, behaviour and emotion. Human beings have a perceptual predisposition to focus on stimuli that are important to his goals.
- With respect to instinct, William McDougall advocated that instincts hold the ability to be moulded and changed during an individual's life time, but only within limits and these limits will vary from one species to another.
- McDougall's theory suggested that other than reflex, each and every behaviour is instinctive or at least its very basis lies in instinct.
- Grief and joy are examples of simple types of emotions while love and hate are complex types of emotions.
- Each emotion has its characteristic facial expression. Facial expression can vary across different cultures, although some aspects of facial expression seem to be universal.
- The emotions can be assessed on the basis of external physical changes. When we are extremely happy, our face lights up but when we are in grief, our eyes are filled with tears.
- Emotions are also expressed through voice. If a person is angry, his or her voice is different from the person who is expressing his or her love.
- Emotion can be defined as a feeling, an aspect of consciousness characterized by a certain physical arousal, a certain behaviour that reveals the feeling to both the outer and the inner world. Emotions can be pleasant as well as unpleasant, when we are angry and afraid we get an unpleasant feeling, when we are delighted we get a pleasant feeling.
- The most damaging effect of emotions is on the physique of the individual. Constant emotional tension may cause lack of sleep, restlessness, headache, chronic fatigue, insomnia and lack of appetite.
- Emotions can be classified into two broad dimensions—adaptive/positive and disruptive/negative. Positive affectivity (PA) refers to positive emotions, such as joy, happiness, love, and, interest. Negative affectivity (NA) refers to negative emotions, such as anxiety, anger, guilt, and sadness. Positive emotions facilitate approach behaviour.
- James-Lange theory of emotion was developed after the name of the psychologist William James and the physiologist G. G. Lange (1884–1894). According to this theory, the perception of an object is followed by the disturbed bodily activities and the bodily activities are followed by the confused sensation. A person becomes aware this sensation as a state of fear and anger.
- Physiologists Walter Cannon (1927) and Philip Bard (1934) theorized that the emotion and the physiological arousal occur more or less at the same time. Cannon, an expert in sympathetic arousal mechanisms, did not feel that the physical changes caused by different emotions were distinct enough to allow them to be perceived as different emotions. Bard expanded on this idea by stating that the sensory information that comes into the brain is sent simultaneously (by the thalamus) to both cortex and organ of sympathetic nervous system.

- According to the Two-Factor Theory of Emotion developed by Stanley Schachter and Jerome Singer (1962), emotion is determined by physiological arousal and cognitive labelling. They argued that we look at the external world to find an explanation as to why we are aroused; for instance, if we feel good at someone's pleasant comment, we may call the emotion 'happy'. If we feel bad after doing something wrong, we may call the feeling 'guilty'.

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6.8 KEY TERMS

- **Emotions:** It can be defined as a feeling, an aspect of consciousness characterized by a certain physical arousal, a certain behaviour that reveals the feeling to both the outer and the inner world.
- **Instincts:** Instinct is what we call innate behaviour and it is a living organism's inherent inclination to a specific complex behaviour.

6.9 ANSWERS TO 'CHECK YOUR PROGRESS'

1. Instincts can be looked upon as complex, inborn behavioural patterns which most members of species possess.
2. Behaviours which does not need conscious effort are reflexes. For a reflex, the stimulus might not need activity from the brain, but it might go all the way to the spinal cord in the form of a message which then will be sent back through the body, creating a path that is referred to as reflex arc. Instinct is a noun that means inborn pattern of behaviour often responsive to stimuli.
3. Emotion can be defined as a feeling, an aspect of consciousness characterized by a certain physical arousal, a certain behaviour that reveals the feeling to both the outer and the inner world.
4. Emotions can be classified into two broad dimensions—adaptive/positive and disruptive/negative.
5. The two main types of emotions are simple and complex emotions. Grief and joy are examples of simple type of emotions while love and hate are complex types of emotions.
6. The two good effects might be:
 - Source of enjoyment
 - Source of motivation
7. Physiologists Walter Cannon (1927) and Philip Bard (1934) theorized that the emotion and the physiological arousal occur more or less at the same time.
8. According to the two-factor theory of emotion developed by Stanley Schachter and Jerome Singer (1962), emotion is determined by physiological arousal and cognitive labelling.
9. Pugnacity, parental instinct and curiosity are some of the instincts that help in education.
10. Parental instinct combines in itself the emotion that we know as pity. It is the instinct that manifests itself in the expressions of love for their children.

6.10 QUESTIONS AND EXERCISES

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Short-Answer Questions

1. What is instinct and how is it different from reflex?
2. What according to Abraham Maslow is instinct?
3. What according to McDougall are instincts composed of?
4. Why are negative emotion bad?
5. What are emotions?

Long-Answer Questions

1. Explain the theory of McDougall on instinct.
2. Write an essay on the different theories of emotion.
3. State the different types of emotions.
4. Write a note on the characteristics of emotions?
5. Discuss the effect of emotion.
6. Explain the role of emotions in education.

6.11 FURTHER READING

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UNIT 7 EDUCATIONAL TECHNOLOGY

Structure

- 7.0 Introduction
- 7.1 Unit Objectives
- 7.2 Meaning and Definition of Educational Technology
 - 7.2.1 Nature of Educational Technology
 - 7.2.2 Components of Educational Technology
 - 7.2.3 Types of Educational Technology
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7.0 INTRODUCTION

History has revealed that technology strengthens the hands of a teacher and makes his/her teaching more effective. Education has been benefited by technology in various ways and at various levels. From both, sociological and the economic points of view, technology has made an impact on education training. Education could keep pace and avoid costs and uncertainties of invention, by merely following technological leads. Today, a number of institutions in developed and developing countries are offering courses through various communication technologies such as interactive TV, computer conferencing, the Internet and other modern media. Some distance education/open learning institutions in developing countries now are also offering courses electronically. As a result, a large number of learners are pursuing their studies through technology. In such conditions it becomes essential for all those in the field of education to be familiar with the nuances of the use of technology in education. Besides it is well known that some teachers teach better by utilizing new methods and techniques, whereas others prefer old methods. Over the years, many techniques, methods and equipment have been developed by teachers and researchers to make the process of learning effective. This process of developing and using scientific methods, media and techniques for enhancing the effectiveness of teaching and learning, is essential for educational technology. In this unit, we will discuss the functions of education technology.

7.1 UNIT OBJECTIVES

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

- Explain the meaning and definition of educational technology
- Analyse the nature of educational technology
- Categorize the types of educational technology
- Examine the scope of educational technology
- Discuss the role and significance of educational technology

- List the approaches to educational technology
- Identify the different types of electronic resources in the field of education

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7.2 MEANING AND DEFINITION OF EDUCATIONAL TECHNOLOGY

The 21st century has been named as ‘age of knowledge’ and there is no way in which one can deny the role of technology in different aspects of our lives. Like other fields, education too has been deeply impacted by technological revolution. This interface of education and technology is popularly known as educational technology. Some associate the term ‘educational technology’ solely with technical equipment and media of education, such as overhead projectors, television and computers. There are others who believe that educational technology involves a scientific and systematic analysis of the teaching–learning process with an objective to maximize its effectiveness.

Before going further, it is essential to understand the word ‘technology’. This word is taken from the Greek word *technología*, which means an art and is related to skill and dexterity. Generally, the term ‘technology’ denotes the systematic application of the knowledge of sciences to practical tasks in industry. Technology can refer to material objects like machinery or hardware and also comprise more themes, including systems, methods of organization and techniques.

In context of educational technology, Garrison (1989) opines, ‘Technology will be viewed here as having both a process (software) and a product (hardware) component, where process is the creative application of knowledge of purposeful activities. A subset of hardware is media, where media are the devices used to distribute information.’ Thus, educational technology is a wider concept of the word ‘technology’. Further, it will be wrong to confuse the term ‘teaching’ with the process of teaching or instructing, or educating, or provision of knowledge or engineering. This creation of education does not compromise and has very positive future prospects. For all those who are constantly engaged in the pursuit of knowledge otherwise, it will remain destructive to the welfare of free society.

A large number of different groups and individuals have defined ‘educational technology’ in many ways, over a period of time. A few of the notable definitions are as follows:

- According to Finn (1962), ‘Educational technology is a process, an attitude, a way of thinking about certain classes of problems.’
- Lumsden (1964) arrived at two meanings of educational technology, viz., educational technology-I (ET-I) and educational technology-II (ET-II). ET-I refers to the application of engineering principles of technology to instrumentation, useful in the process of teaching. ET-II refers to the application of behavioural science to improve instruction.
- The National Council for Educational Technology (1967) has defined educational technology as ‘the development, application and evaluation of systems, techniques and aids to improve the process of human learning’.
- According to G. O. M. Leith, ‘Educational technology is the application of scientific knowledge and learning and the conditions of learning, to improve the effectiveness and efficiency of teaching and training. In the absence of

scientifically established principles, educational technology implements the techniques of empirical testing to improve learning situation.'

- According to S. K. Mitra, 'Educational technology can be conceived as a science of techniques and methods by which educational goals could be realized.'
- According to S. S. Kulkarni, 'Educational technology may be defined as the application of the laws as well as recent discoveries of science and technology to the process of education.'
- According to D. Unwin, 'Educational technology is concerned with the application of modern skills and techniques to the requirements of education and training. This includes the facilitation of learning by manipulation of media and methods and the control of environment in so far as this reflects on learning.'
- According to *Shiksha Paribhasha Kosh* (1978), educational technology has the following meanings:
 - (i) It is the use of those scientific theories and principles during the formulation and application of training systems, which emphasize result and experience based objectives, and are based upon educational principles to guide the education system.
 - (ii) Educational technology is the use of those audio-visual devices in training, which are based on modern technology, e.g., use of computer stimulators, television, radio, video-tape, etc.
 - (iii) It is self-training based on planned instructional material, through teaching machines.
- According to the Association for Educational Communication and Technology, AECT (1977), 'Educational technology is a complex and integrated process, involving people, procedures, ideas, devices and organization, for analysing problems and devising, implementing, evaluating and managing solutions to those problems, involved in all aspects of human learning.'
- According to Mitchell (1978), there are five fundamental definitions of educational technology:
 - (i) **Educational technology I (educational psycho technology):** This meaning depends upon psycho technology to enhance a learner's capability by manipulating sensory input directly or indirectly. The various problems of educational psycho technology are: assessing the capability of students on the basis of diagnoses; clarifying the objectives of education; selecting or prescribing the instructions of communication, resources or actions and assessment. It includes all methods of management of the learning processes of others, in order to achieve certain prescribed behaviours. Controlled learning is important since student is the focal point. This meaning corresponds to the professional role of learning consultant.
 - (ii) **Educational technology II (educational information and communications technology):** This meaning stresses on the model, manufacture and assessment of training resources and communications for local or widespread distribution. Focus is on generating, selecting,

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processing and storage of information for the purpose of education and to retrieve information. This is to make knowledge more accessible. This meaning corresponds to the role of education materials provider.

- (iii) **Educational technology III (educational management technology):** This definition stresses on organization of the resources of education. These resources include associated activities like planning, programming, budgeting, management, decision-making, operations research and system analysis. Organizational technology provides useful decision modes, information systems and organizational theory for man-machine systems. This concept of educational technology is supported by both practical and theoretical investigations. So, this meaning corresponds to management of learning resources.
- (iv) **Educational technology IV (educational system technology):** This concept pertains to functions like setting up, outlining, constructing and evaluating educational systems. The education system developer is concerned with administration, operations, extra-mural and alternative educational systems. It may envision and execute a computer-aided system of training or design suitable courses.
- (v) **Educational technology V (educational planning technology):** This meaning focuses on planning at the supra-institutional or national level. Non-educators are the prime occupants of this field. Their belief in alternative opportunities of education is overshadowed by economic factors related to the role played by the educational planner.

This fivefold meaning of educational technology represents the primary and central concept of educational technology. Each of these types can stand alone and yet be integral to others.

Mitchell (1978) arrived at the following consolidated definition of educational technology, 'Educational technology is an area of study and practice (within education) that is concerned with all aspects of the organization of educational systems and procedures, whereby resources are allocated to achieve specified and potentially replicable educational outcomes.'

According to the Scottish Council for Educational Technology (1979), 'Educational technology is a systematic approach to designing and evaluating learning and teaching methods and methodologies, and to the application and exploitation of media and the current knowledge of communication techniques in education, both formal and informal.'

In words of National Curriculum Framework, NCF (2006), 'Educational technology could be defined in simple terms as the efficient organization of any learning system, adapting or adopting methods, processes and products, to serve identified educational goals.' This would involve:

- Systematic identification of the goals of education, taking into account nationwide needs (like higher scalability), system capabilities and learners' needs and potential
- Recognition of the diversity of learners' needs and the contexts in which learning will take place and the range of provisions needed for them
- Recognition of not only the immediate needs of children but also of their future needs in relation to the society for which we are preparing them

- Designing, providing for and enabling appropriate teaching-learning systems that could realize the identified goals
- Developing a range of support systems and training, enabling systemic conditions/materials and making them accessible schools
- Training teachers and students to use them
- Research existing and new techniques, strategies and technologies for solving problems of education, enabling judicious and appropriate application of technology
- Appreciation of the role of educational technology as an agent of change in the classroom, influencing the teacher and the teaching-learning process and its role in systemic issues like reach, equity and quality

In the executive summary of a paper on education technology, NCF (2006) opines, 'Educational technology is the efficient organization of any learning system, adapting or adopting methods, processes and products to serve identified educational goals. This involves systematic identification of the goals of education, recognition of diversity of learners' needs, the context in which learning will take place and the range of provisions needed for each of these.'

AECT has given its latest definition of educational technology as '...the study and ethical practice of facilitating learning and improving performance by creating, using and managing appropriate technological processes and resources.' (Januszewski and Molenda, 2008). Mangal & Mangal (2010) opine, 'Educational technology should stand for a wise application of available human and non-human resources for providing appropriate solutions to educational problems and to improve the process and products of education.' Aziz Hap (2010) defines 'educational technology as 'the considered implementation of appropriate tools, techniques, or processes that facilitate the application of senses, memory and cognition to enhance teaching practices and improve learning outcomes'.

The wide differences in opinion, regarding the definition of educational technology among theorists and practitioners is very well revealed in the above definitions. These definitions initially embraced the whole range of activities of educational technology, from the methods of psychology of learning and teaching to audio-visual communication and mass technology.

However, one can list certain characteristics of educational technology from the above definitions:

- It is concerned with the systematic application of science and technology in the field of education.
- It adds efficiency to the process of teaching-learning within formal and informal situations.
- It includes organization of appropriate learning conditions for realizing the goals of education.
- It stresses on developing methods and techniques for effective learning and evaluation.
- It encompasses the complete teaching and learning process and is not limited to specific aspects.
- It involves input, output and process aspects of education.

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- It includes organization of learning conditions for realizing the goals of education.
- It enables and facilitates learning by control of learning situations, media and methods.
- It is not limited to the usage of audio-visual aids, but also extends to the application of psychological principles and instructional theories for improving the teaching-learning process.
- It provides procedural and practical guidance and explanation to the glitches of education.

7.2.1 Nature of Educational Technology

The roots of educational technology lead us to the time when early tools had come to exist, e.g., paintings on cave walls. However, generally, its history begins with a film on education (1900s), or Sidney Pressey's mechanical teaching machines of the 1920s. Since then education technology has been evolving and taken many forms such as PowerPoint presentations with voice-over; hypertext, i.e., V. Bush's memex in 1940s; Skinners work led to 'programmed instruction' in 1950s; Computer Aided Instruction or Computer Assisted Instruction (CAI) in the 1970s, through the 1990s and in the present scenario it has taken the form of Computer Mediated Communication (CMC), e-tutoring and blended learning among others. However, educational technology should not be confused with teaching or instruction or learning or engineering, but it should be taken as sum total of all such aspects which go a long way in shaping the personality of the learner in a meaningful context (Singh, 2006).

Further, with changes in the technology, the conception and nature of educational technology has also been adapting itself. Although the term has been in use for long now, however, it is still considered complex in nature. Educational technology is very versatile and comprises a cyclic procedure, a store of equipment (physical and conceptual) and a multiple-node liaison, mutually between learners and also between them and the facilitators of instructions (Hap, 2010). To understand the nature of educational technology, one needs to ascertain the objectives of educational technology and distinguish between 'technology in education' and 'technology of education'. One is also required to comprehend the components of educational technology.

Objectives of Educational Technology

As defined by Leith, educational technology is the application of scientific knowledge about learning and the conditions of learning to improve the effectiveness and efficiency of teaching and training. Educational technology has the following prime objectives:

- To modernize learning methods and techniques according to the changing world
- To bring desirable changes in the behaviour of teachers and pupils by improving teaching, learning and evaluation conditions
- To make classroom teaching clear, effective, objective and scientific

Hilliard Jason has given the following points on the objectives of educational technology:

- It transmits information.
- It serves as a role model.

- (iii) It contributes to the provision of feedback.
- (iv) It assists in the practice of specific skills.

Alvin Toffler talks of 'responsible technology', so the objectives of educational technology can be as follows:

- (i) To establish objectives and put together goals, in terms of behaviour.
- (ii) To examine the learners' personality.
- (iii) To structure the information in an order that is psychologically inclined.
- (iv) To arbitrate between content and resources of presentation.
- (v) To assess the accomplishment of learners, in terms of the objectives of education.
- (vi) To supply feedback, among other components, for modifying the learner.

General objectives of educational technology

- (i) To identify educational needs of the community.
- (ii) To determine the aims and objectives of education.
- (iii) To prepare an appropriate curriculum.
- (iv) To determine suitable strategies.
- (v) To identify human and non-human resources.
- (vi) To identify problems which stand in the way of development of the learner's personality.
- (vii) To suggest remedies to solve problems that emerge.
- (viii) To manage the entire educational system.
- (ix) To improve the process and product of education.

Specific objectives of educational technology

(From the viewpoint of specific classroom teaching)

- (i) To identify educational needs of students.
- (ii) To determine classroom objectives in behavioural terms.
- (iii) To evaluate and sort the content of instructions in logical or psychological succession.
- (iv) To plan teaching methods and strategies of the presentation of content.
- (v) To make use of aid material, software and hardware, mass media and communication techniques.
- (vi) To identify human and non-human resources.
- (vii) To evaluate classroom teaching, in terms of performance of students.
- (viii) To provide continuous feedback to students and the teacher for improving the teaching-learning process.

Technology in Education and Technology of Education

Education today has grown in leaps and bounds. Technology has made learning easier for both teachers and students. The developments in technology are not limited to gadgets and appliances used by people daily, but they have reached schools and classrooms. In this connection, there are two phrases which are popularly and often interchangeably

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used—technology in education and technology of education. Though they sound similar, they are different.

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Technology in education refers to the use of technological hardware in education. Here, more importance is given to the media used for carrying a message. It is mainly concerned with electrical and electronic gadgets, which are used to facilitate the teaching–learning process. This is a constantly evolving field that depends upon technological advancements. It involves the increasingly complex range of audio-visual equipment, hardware and sophisticated electronic devices like projectors, films, television, tape recorder, teaching machines, teletext and Computer Aided Instruction for individual and group learning. The use of technology in education has many advantages, just as technology has enriched every aspect of life. Technology in education is not limited to make learning and imparting of education easier in every possible way. It is also a field of study in itself for those who are involved with developing technological tools for educational purposes.

It is always advantageous to use technology in education because it helps both teachers and students to gain knowledge in a quicker and better way. Technology in education will be useful if it is properly planned and organized on psychological and pedagogical principles. Technology in education serves the following purposes:

- (i) Supplies the required appliances, equipment and mass media for accomplishment of different purposes and functions of education.
- (ii) Facilitates training of teachers to handle and make the finest use of equipment.
- (iii) Develops a positive attitude among teachers and learners towards these appliances.
- (iv) Signifies the relevance and use of the appliances in the context of individual and group learning, to achieve the goals of formal and informal learning.

Technology of education can be referred to as a purposeful utilization, in combination or separately, of objects, techniques, devices, events and relationships to increase the effectiveness of educational purpose. Technology of education deals with applying the resources of technological knowledge in an organized way, through which every individual has to pass, for acquiring and using knowledge. It governs the involvement of educationists in the design and evaluation of systems of learning, involving an understanding of the psychology of learning, communication and information theory. It signifies a technological approach to the system, issues and problems of education. This approach characterizes the methodology appropriate to learners' needs, learning objectives, the process of learning and teaching, as well as availability of resources. Technology of education includes Technology in education, as shown in Figure 7.1.

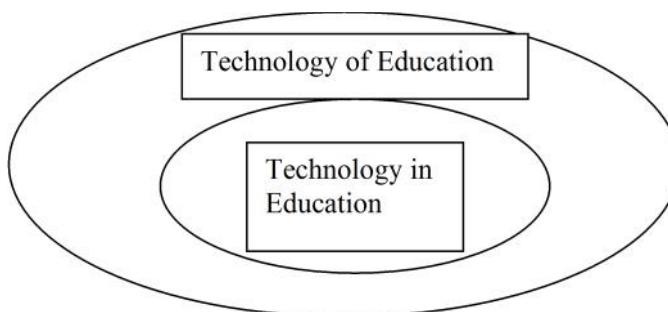


Fig. 7.1 Technology in Education as a Sub-set of Technology of Education

Technology of education also includes decisions about different aspects of education like determination of educational objectives to be achieved, the size of learning groups, learning sequence, teaching methods and selection of media. It also comprises the appropriate use of media, knowledge, ideas, human and non-human resources in systematic planning, designing, production, management and evaluation of the educational process. In other words, it includes the entire process of setting goals, continuous renewal of curriculum, trial and use of new methods and materials, evaluation of the system as a whole and resetting of goals in view of changing circumstances.

Saettler (1978) distinguishes between technology of education and technology in education. According to him, the former is a behavioural science conception, whereas the latter is a machine (device) conception of educational technology. Radio, television, OHP (overhead projector), computer, tape recorder, etc., constitute technology in education. On the other hand, programmes on radio and television, computer programmes and OHP transparencies that are based on scientific knowledge of education, constitute technology of education.

7.2.2 Components of Educational Technology

S. P. Ruhela (2002) in his book, *Educational Technology*, has listed three main components of educational technology as a concept; and each component has a defined role to play in the process of education. The three components are:

- (i) **Methods:** Making use of a few devices like programmed learning, team teaching, micro-teaching and personalized system of instruction as methods in teaching-learning situations.
- (ii) **Materials:** Comprise instructional materials like programmed textbooks, manuals, guides, texts and other written/print materials.
- (iii) **Media:** Implies employing audio or visual or both audio-visual media, such as radio, tape recorders, charts, maps, posters, films and educational television as teaching aids to supplement effective teaching and promote better learning.

Besides, manpower is an essential component of educational technology, which intertwines the web of methods, materials and media. In view of this list of components of educational technology, the concept of educational technology needs to be understood in the broader perspective of education. It is a comprehensive technology associated with all aspects of the educative process such as choice of methods, teaching strategies, selection of adequate/relevant learning materials, use of appropriate aids and guiding in operation/handling of various equipment to ensure better performance on the part of the learner. AECT (1977) reports, 'educational technology is a broad concept encompassing teacher and learner, as well as the process and product of learning'. Educational technology functions as a mission with the prime concern of reaching a large section of the society through all possible means. Educational technology involves greater psychological and pedagogical preparedness, a scientific attitude and a coordinated approach to the educational process as whole. It reflects a professional interest and zeal for making experiments and innovations for the development and success of education.

The highlights of the nature of educational technology are listed as:

- (i) It is a science of techniques and methods which can help in realizing goals.
- (ii) It is an application of the body of knowledge.
- (iii) It takes help from the laws and findings of psychology, sociology, engineering, and some other basic social and physical sciences.

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- (iv) The purpose of educational technology is to improve teaching–learning situations.
- (v) It is a functional analysis of the teaching–learning process and it locates various components that operate from the stage of input to that of output.
- (vi) It is dynamic and progressive in nature.
- (vii) It treats school as a system of well-laid inputs, processes and output components.
- (viii) It does not subsume the role of a teacher.
- (ix) It is not an end in itself but a means to accomplish some laid down goals.
- (x) It does not provide a solution to all types of problems, but it helps in the development of teaching and training processes of education.
- (xi) It cannot be viewed in terms of its parts or processes. All branches, innovations, approaches and strategies should be integrated as a whole, according to the needs and requirements of the system represented by educational technology.
- (xii) It is a technology that is continuously developing.

In essence, one can say that educational technology is applied to the teaching–learning process with the main purpose of making the system efficient and effective. In other words, appropriate use of educational technology can make the teaching–learning process efficient and effective. However, practitioners need to be careful about the use of media, methods and materials. This has been explained in NCF (2006): ‘The key phrases in ET (educational technology) are appropriate technology, that is, appropriate to the task in hand for meeting specific educational objectives and the organization of all available resources into a workable system, which is checked again and again to ensure that it is appropriate and changing it where it is not working. In applying the discipline of ET to the field of education, it is imperative that the media choice must relate to instructional design as well as to what is available and eminently usable’.

Further, educational technology should not be considered just as subject but should be regarded as something that adds qualitative value, is relevant and appropriate. Its other attributes include transformation of education by making it dynamic and responsive and arousing curiosity and a desire to learn.

7.2.3 Types of Educational Technology

Technology, media and materials that are useful in the instructional process, comprise simple varieties that help teachers to develop and present their lessons more effectively in traditional classrooms. They also comprise sophisticated machines and mechanisms that completely change the structure and scenario of classroom teaching. A number of technological media and materials can be useful in both teaching and in the management of administrative data that is necessary in modern mass education. Educational technology can thus assume many forms. Often, its only aim is to make the current practices more efficient and effective. However, at times educational technology brings about pedagogical alterations. Though it can be regarded as a design science, it also tackles the basic problems related to learning, teaching and social organization. Hence, the complete use of all features of modern social science and life science methodology are captured by it.

Educational technology performs the twin functions of a tool and a catalyst. The three commonly accepted types of educational technologies are: (i) teaching technology, (ii) behavioural technology and (iii) instructional technology. These are discussed as:

1. Teaching technology

Teaching is a skill. The use of technology in teaching makes this skill simpler, specific, functional and unprejudiced. This form of educational technology rests itself on the knowledge of philosophy, psychology and science, so as to achieve the desired learning objectives. There are two important features of teaching: (i) content and (ii) classroom communication. Substance and interaction are the two factors that form teaching technology. In addition, contemporary teaching focuses on the student and not on the teacher. Thus, it needs a psychological analysis of the learner. Hence, teaching is both scientific and psychological. The system of learning assists the teacher in making right decisions. In addition, it also builds up a sense of professionalism that makes one accountable. It incorporates essential alterations in the idea of teaching; teacher's training, formulating the policies of teaching, management objectives of a teacher, etc. Teaching technology is that form of educational technology, which is concerned with making the process of teaching more systematic.

Assumptions of teaching technology

Teaching technology is based on the following assumptions:

- The nature of teaching process is scientific.
- Teaching activities can be modified as required.
- Pre-determined learning objectives can be achieved through teaching activities.
- A mutual relationship between teaching and learning can be established.
- Proper conditions can be created for effective learning.

Characteristics of teaching technology

E. G. Vedanayagam (1988) has solicited a list of characteristics and fundamental principles of teaching technology. These are as follows:

- Teaching is a scientific process and its major components are content, communication and feedback.
- There is a close relationship between teaching and learning.
- It is possible to modify, improve and develop teaching–learning activities.
- The terminal behaviour of the learner, in terms of learning structures, can be established by appropriate teaching environment.
- Teaching skills can be developed and strengthened by means of feedback devices, with or without sophisticated techniques.
- Pre-determined learning objectives can be achieved by designing suitable teaching activities.
- The use of achievement motivation technique enhances the output of a teacher and a learner.

Technology is a rapidly changing area of the curriculum. For experienced teachers as well as students and novices, technology has evolved the need for a whole new range of knowledge and skills in teaching. Davies (1971), in his book, *Management of Learning*, has presented the contents of teaching technology in four steps— (i) planning of teaching, (ii) organization of teaching, (iii) leading by teaching and (iv) control of teaching. These are discussed in detail, as follows:

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- (i) **Planning of teaching:** Within this phase, the teacher examines the subject matter, decides upon and describes learning objectives, and puts these objectives clearly in writing. The following three activities are performed by him, as part of this phase: (a) task analysis, and (b) identification of the aim of teaching, (c) noting down learning objectives. As quoted by I.K. Davies, 'in teaching, planning is the work a teacher does to establish learning objectives'.
- (ii) **Organization of teaching:** In this stage, an effectual atmosphere is created by the teacher. This is done through the selection of teaching techniques, approaches, procedures and vital benefits.
- (iii) **Leading by teaching:** In this stage, the teacher is a source of motivation for the students. They show interest in the teaching and learning objectives in every phase of this stage. I.K. Davies wrote, 'leading is the work a teacher does to motivate, encourage and inspire students, so that they readily achieve the objectives of learning'.
- (iv) **Control of teaching:** In this stage, there is no change in prearranged and described purpose of learning. This stage does not comprise the introduction of any change. However, the prospect is reviewed by the teacher, so that the predefined goals can be achieved. For accomplishing this impressive task, support is sought by the teacher through different techniques of validation and measuring of dimensions. If the teacher comes to the conclusion that the learning objectives have not been accomplished, then it is his duty to bring essential modifications in the organization's behaviour.

2. Behavioural technology

Behavioural technology is a vital constituent of educational technology. It emphasizes that psychosomatic values be used in learning and teaching. The motive is to change the behaviour of the teachers and pupils to match with the objectives of teaching. This form of educational technology is dependent on psychology. Behaviour is the focus of the process of education and learning with their objective to bring persistent changes. Different learning experiences are shared with learners to bring desirable changes in their behaviours. Here, behaviour would mean the cognitive, conative and affective activities of an individual. Behaviour technology, as a form of educational technology, is utilized to study and bring modification in the behaviour of all learning organisms.

B. F. Skinner popularized the usage of this term while making use of his 'theory of operant conditioning'. He used the theory to bring desired modifications in the behaviour of learning organisms. In the area of learning and education, behavioural technology focuses on the behaviour of teachers. Hence, it is sometimes also referred to as 'training psychology'. In schools, the task of behavioural technology has become almost synonymous with behaviour analysis and behaviour modification, carried out through the principles of operant conditioning and observation learning. In other words, behavioural technology focuses attention on the use of principles that have a psychological orientation in the processes of learning and teaching. This works to alter the behaviour of the teachers and pupils to match it with the mode of teaching. Behavioural technology is aimed at boosting the growth and development of behaviour and learning. It employs the following to transform the behaviour of a teacher:

- Definition of teacher-behaviour
- Doctrines of teacher-behaviour

- Observation technique of teacher-behaviour.
- Study and nature of teacher-behaviour.
- Assessment and standards of teacher-behaviour.
- Prototypes of teacher-behaviour.
- Different tools to develop teacher-behaviour such as: programmed instructions, T-group training, interaction analysis techniques and simulated training of social skills.

Suppositions of behavioural technology

Behavioural technology is based on the following suppositions:

- A teacher's behaves socially and psychologically.
- A teacher's behaviour can be observed.
- A teacher's behaviour can be measured.
- A teacher's behaviour can be modified.
- Everyone is not a born teacher.
- Teachers can also be made.

Salient features of behavioural technology

Some of the important characteristics of behavioural technology are:

- The basic function of behavioural technology is psychology.
- Strength and responses are strongly focused upon in behavioural technology.
- The teaching acts are appraised from a purposeful viewpoint in behavioural technology.
- Behavioural technology emphasizes on psychomotor goals.
- Behavioural technology is in terms of the software approach.
- Behavioural technology is widely practised training institutes of teachers.
- The attention of behavioural technology can be based on individual differences between students and teachers.
- Behavioural technology is focused on the elements and direction of behaviour in a classroom.

Behavioural technology would help practitioners to know the nature of the existing behaviour, the nature of the target behaviour, and the ways and the means to meet gaps between existing and target behaviours.

3. Instructional technology

The evolution of a technology occurs when scientific learning and communication are used in teaching. When physical sciences interact with education, we are provided with traditional support, gear, materials like paper, ink, books, radios, films, televisions and more refined progressive hardware like, computers, space satellites, language laboratories, etc. Stoluraw (1963) stressed on the theory of existence of three most important factors that are focused on the association of instruction and technology: (i) population explosion of the world, (ii) exponential pace of the spread of new knowledge, and (iii) scientific and technological changes in our present social structure. Robert A. Cox defined the

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technology of instructions as ‘... the application of scientific process to man’s learning conditions’. E. E. Haden opined, ‘instructional technology is that branch of educational theory and practice, concerned primarily with design and use of messages which control the learning process’. The definition given by Unwin (1969) described instructional technology as: ‘The application of modern skills and techniques to requirements of education and training (instruction). This includes the facilitation of learning by manipulation of media and methods and the control of environment’.

Another popular and accepted definition has been given by S. M. McMurrin (1970): ‘Instructional technology is a systematic way of designing, carrying out and evaluating the total process of learning and teaching, in terms of specific objectives based on research, human learning and communication. It employs a combination of human and non-human resources to bring about the more effective instruction’. AECT has defined instructional technology as, ‘the theory and practice of design, development, utilization, management and evaluation of processes and resources for learning’.

In the present scenario, instructional technology is broadly necessitated to establish a progress in teaching, in learning and in the process of evaluation. This form of educational technology is meant for helping the instructor and the learner in the desired instructional task for the realization of stipulated instructional objectives, in a particular teaching–learning situation (Mangal, 2010). In other words, focus is on developing the instruction process.

Assumptions of instructional technology

The fundamental assumptions of instructional technology are as follows:

- A student is able to learn in accordance with his requirement and capability.
- A student can learn even if the teacher is not present.
- One can augment a particular instruction by its continuous use.
- Instructional objectives can be achieved with the help of learning objectives.
- The area of discussion can be segregated into different sectors or parts, and every part can be taught in an independent way by use of this technology.

Unique features of instructional technology

Following are the characteristics of instructional technology:

- Instructional technology helps a lot in the achievement of reasonable goals.
- Instructional technology can make teachers more efficient.
- When supported by instructional technology, the students can learn in accordance with their requirement and speed of grasping.
- Instructional technology has control over individual disparities.
- Instructional technology also uses the theory of conditioned response.
- A more detailed examination of subject matter is carried out with the help of instructional technology, which motivates optimism, pertaining to the remarkable manner in which the contents are presented.

Instructional technology suggests many tools, techniques and knowledge which are used in designing and delivering results. Together they provide useful means towards accomplishing educational objectives. It is important to know and be responsive to:

- The destination of delivery of instructions.
- The tools and techniques available to deliver instruction.
- The right time to use these tools.
- Design and delivery of successful learning experiences.
- Proper distribution of content and methods.
- The best place to deliver instruction.
- Ensured meeting of expectations.
- Revision techniques, in case instructions are not met.

The field of instructional technology will only grow if technology improves. The use of technology will help the delivery of education in an efficient manner, by overcoming the limitations and problems faced by the education sector. This form of educational technology is gaining popularity because instructional technologists claim to achieve effective learning by investing less time and cost, than through other means.

The main points of difference between three types of educational technologies (behavioural technology, teaching technology and instructional technology) are listed in Table 7.1.

Table 7.1 Comparison of Three Types of Educational Technologies

Aspect	Teaching Technology	Behavioural Technology	Instructional Technology
Exponents	I.K. Davis, Hunt, Morrison, Herbart	B.F. Skinner, Flander, Ober, Amidon	Lumsdan, Bruner, Asubel, Glaser
Purpose	Development of cognitive, affective and psychomotor domains	Development of cognitive, affective and psychomotor domains	Development of cognitive domain
Base	Philosophy, psychology and science	Psychology	Psychology and science
Approach	Hardware and Software	Software	Hardware
Focus	Teaching	Teacher	Instruction
Application	For making classroom teaching purposeful and effective	For producing effective teachers	Self-study, correspondence, remedial study

7.2.4 Scope of Educational Technology

The scope of any subject means the jurisdiction, limits or boundaries of its operation. Similarly, educational technology needs demarcation of boundaries within which the process of education can go on. As has already been acknowledged, educational technology is concerned with bringing about an improvement in the teaching–learning process. It is an applied or practical study which aims at maximizing educational effects by controlling different types of confounding variables. Thus, educational technology is a broad concept that has a wide application. The National Policy on Education (1986) recommends: ‘Educational technology will be employed in the spread of useful information, the training and retraining of teachers, to improve quality, sharpen awareness of arts and culture, include abiding values, etc., in both, formal and non-formal sectors. Maximum use will be made of the available infrastructure’.

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According to S.S. Kulkarni, the scope of educational technology is: (i) to analyse teaching-learning, (ii) to evaluate the functions of the components of teaching-learning, and (iii) to interpret these components in such a way that effective results can be achieved. In narrow sense, educational technology means a little more than the use of sophisticated hardware in teaching, including overhead projectors, tape recorders, televised films, cassettes, videodiscs, gramophones, etc. On a broader scale, it may be interpreted to mean the use of any new technique or method of teaching. Drawing on the same and other related definitions, the scope of educational technology can be encapsulated in the points discussed below:

- **Analysis of teaching and learning process:** Educational technology attempts to discuss the concept of teaching. It also analyses the teaching process, variables of teaching, phases of teaching, levels of teaching, theories of teaching, principles and maxims of teaching, the concept of learning, theories of learning, relationship between teaching and learning, and application of different concepts in specific classroom activities. It optimizes learning and attains optimum educational objectives.
- **Determination of objectives:** Writing objectives in behavioural terms is an essential task for carrying out the process of education. Educational technology has provided different methods and techniques for writing instructional objectives in behavioural terms. The RCEM (Regional College of Education, Mysore) approach, Bloom's Taxonomy and other similar ones have provided options to teachers for setting objectives in their own style, according to their specific needs. The adaptation of the objectives to the changed environment and altered circumstances has been enabled by the use of educational technology.
- **Development of teaching-learning materials:** Teaching-learning materials are an important aspect of the teaching-learning process. Educational technology has contributed to the production and development of suitable teaching-learning material, in view of predetermined objectives, designed curriculum and accessible resources. This covers the techniques of developing software and instructional material like programmed learning material, personalized system of instruction, material for mass education, computer assisted learning material, and material for open university courses.
- **Development of teaching-learning strategies:** Educational technology has tried to describe ways and means of discovering, selecting and developing suitable strategies and tactics of teaching, keeping in mind the different circumstances, the available resources, and other factors. Progressive development of different teaching models and methods has always equipped the teacher with newer teaching-learning strategies.
- **Teacher training:** Educational technology takes into consideration all aspects of the teaching-learning process. Teachers are one of the important aspects for those working in the field of educational technology. The subject has therefore been inclined towards the purpose of preparing teachers and has evolved techniques like micro-teaching, Flanders' interaction analysis, and simulated teaching, for teacher education programmes.

- **Development of curriculum:** An appropriate and well-balanced curriculum is the backbone of education, for any group of learners. As new technologies are created, knowing successful strategies for developing and transferring educational material becomes increasingly important. Educational technology can dwell on suitable frameworks, learning experiences, and innumerable factors associated with the development of appropriate curriculum, as per the societal needs.
- **Usage of audio-visual aids:** The selection of appropriate audio-visual aids greatly enriches the teaching–learning process. Educational technology discusses at length, the different facets of audio-visual aids, for example different types and rules governing their selection, development and production, their storage and retrieval and consideration about their applicability, cost-effectiveness and efficient deployment in learning situations.
- **Development and utilization of mass media:** Educational technology has a huge application in educating a large section of people and imparting a large amount of knowledge in a limited span of time. With reference to this, the mass media, i.e., television, radio, newspaper, and other modern technologies like computers and information technology (e-mail, Internet, etc.) has a lot of scope. The illiterate masses can be educated with the help of innovative methods and practices of teaching and learning.
- **Historical information:** Any branch of knowledge that we deal with has a historical base. Such information holds tremendous importance for students to understand any branch of knowledge in its totality. When such incidents occur, they can be recorded on audio/video CDs or documented in the form of written or printed material. Such documents become the source of information for learners. Educational technology has enabled teachers to store such historical information and transmit it to next generation learners. Thus, education technology helps in collection, storage and retrieval of information.
- **Gaming and simulation:** Educational technology provides the option of going through historical events, which is either costly or hazardous and cannot be done through simulation. Computer technology plays a main role here. It can provide a lifelike picture of the phenomena, in different dimensions. Education technology can also show the operation of different parts of a phenomenon and the consequences. The other possibility is games. Through gaming, children can learn many concepts that cannot be taught in the formal set-up of a classroom. Besides exhibiting their benefits for children, gaming and simulation have also proved to be useful in the training of teachers at both pre-service and in-service levels.
- **Distance education:** Educational technology has a great scope in distance education and open school programmes. In the present scenario, there is a great need for personnel training and education on regular basis to keep one updated in the field of work. On the same lines, distance education programmes, a relatively less formal process of education, have acquired an important status. Educational technology, with its innovative practices, can educate learners who cannot attend classroom sessions for their education. In this regard,

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programmed learning materials, modules, contact programmes, and counselling are some innovations that can help distance learners. This has made higher education accessible to the masses.

- **Appropriate tools, techniques and processes:** Techniques and processes have proved their value in the field of education. Teachers have come up with methodologies to fulfil tasks and obtain the targeted learning outcomes. The refinement of these techniques is a continuous process, similar to continuous developments in technology. Here, it is inevitable to understand that the employed technique should be appropriate; even though the most expensive technology is used, it may not add any value to education.

The above discussion endorses the fact that educational technology is concerned with all variables, phases, levels and aspects of the teaching–learning process. In fact, the scope of education technology cannot be confined to narrow boundaries. The expansion and development of the subject matter would further aid in improving the teaching–learning process. Thus, educational technology is a concept that is widening continuously.

7.3 UTILITY OF EDUCATIONAL TECHNOLOGY IN FORMAL AND NON-FORMAL EDUCATION

As a discipline, educational technology extends beyond the total of its components. In the present context, educational technology connotes a field of study including instructional design, audiovisual media, teaching–learning process, teaching strategies, training strategies and assessment strategies. Educational technology is far more than just technology; its bases are psychology, social anthropology and sociology. Early developments in this field defined the use of technology in education as the involvement of audiovisual equipment, i.e., hardware in educational processes. The use of hardware in teaching–learning results in increased effectiveness of the education process. This progression in the field changed the definition of technology in education, i.e., methods and techniques of the teaching–learning process. Practically speaking, this signifies the software section of educational technology. The use of technology in education results in increased productivity through human capability.

Educational technology has to be understood as a science of techniques and methods, by which educational goals can be realized, which makes it easy to adopt modern technologies for improving the effectiveness of the educational process. Consequently, machines and newer techniques are being employed in all areas of knowledge: preservation, transmission and advancement. This extends educational technology across wider boundaries. However, we need to understand that technology within the confines of the classroom has many advantages as well as disadvantages. The disadvantages include absence of adequate training, restricted access to technology and extra time wasted in implementing new technologies. For better understanding of educational technology, it is important to be familiar with the theories of human behaviour, and how behaviour gets affected by technology. This necessitates the adoption of a systematic procedure for using technology in the classroom at a narrow level and the whole educational process at a broad level. This gives way to different approaches to educational technology.

Check Your Progress

1. What do you mean by educational technology?
2. Give one difference between technology of education and technology in education.
3. What are the main objectives of educational technology?
4. What are the three types of educational technologies?
5. State the basis of the three types of educational technologies.

Approaches to Educational Technology

Professor Henry Ellington (1993) opined that the key function of educational technology is to bring about improvements in the general competence and efficacy of the teaching–learning process. He further said that these improvements can be introduced in the following ways:

- (i) By enhancing the quality and capacity of learning.
- (ii) By reduction of the turnaround time for learners to achieve the assigned objectives.
- (iii) By making teachers more efficient.
- (iv) By cost-cutting without compromising on quality.
- (v) By making learners capable of taking their own decisions.
- (vi) By providing education in more flexible ways.

Considering educational technology as multifaceted in nature, Lumsdaine (1964) has listed its three distinct approaches:

- (i) Educational technology I (ET1) or the hardware approach
- (ii) Educational technology II (ET2) or the software approach
- (iii) Educational technology III (ET3) or the systems approach

1. Hardware approach

The hardware approach implies the use of mechanical materials and equipment in the domain of education. Audiovisual aids like charts, models, filmstrips, slides, audio cassettes and sophisticated equipment and gadgets like films, projectors, radio, tape recorder, record player, television, video, teaching machines, computers, etc., fall in the category of hardware. The hardware approach is based on the application of principles of physical sciences and engineering to education and training. In this system, the teaching process is being mechanized gradually so that maximum pupils may be educated in minimum time and at low costs. This approach is a by-product of the scientific and technological developments of the 20th century.

It is to be noted that teaching machines are the only mechanical aids deliberately designed and invented to fulfil instructional requirements. All other audiovisual aids were designed and manufactured for improving the communication system, but now they are being used for instructional purposes.

The mechanization is being introduced for preservation, transmission and advancement of human knowledge. For instance, a teacher can deal with a large group of students by his discourse on radio or television. Thus, educational and training systems are able to deal with an increased number of students and the cost per student has been reduced by the hardware approach to education. Silverman (1968) referred to this type of educational technology as ‘relative technology’. This comprises borrowing and applying technology, machines and devices in the process of teaching and learning. In this context, educational technology serves a simple ‘service’ function in education.

Ivor Davies calls this approach the ‘audiovisual archetype’. This approach stresses on the employment of machines, devices, equipment and similar instructional aids. This approach focuses on the teacher and his/her teachings. ‘Technology is seen as a means of mechanizing or automating the process of teaching with devices that transmit, amplify, distribute, record and reproduce stimuli materials and thus increase the teacher’s impact,

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as well as widen potential audience' (Davies, 1978). In the beginning, media had developed this approach during the 1930s. It gained prominence during the post World War II period. According to Davies, this 'audiovisual archetype' considers audiovisual hardware to perform functions like supporting classroom presentations, improving demonstrations by giving access to reality or simulations of reality. It is not possible for a teacher to come up with these, within a short span of time. Nevertheless, this approach has faced several criticisms for lack of coordination in its application.

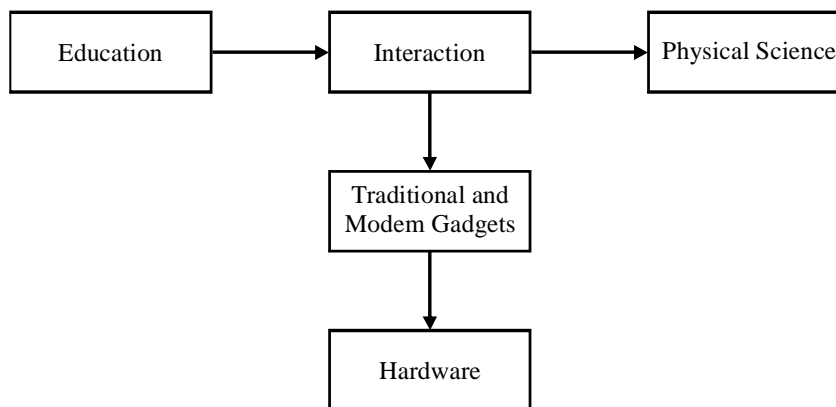


Fig. 7.2 The Hardware Approach

Characteristics of hardware are as follows:

- Hardware components are generally electronic and mostly depend on mechanical systems.
- New techniques and researches are being conducted to evaluate the effect of hardware.
- The outcome of hardware is direct and immediate because of its concrete form.
- Hardware components are the media of communication.

2. Software approach

The software approach or software technology of education owes its origin to behavioural sciences and their applied aspects concerned with the psychology of learning. It originated from the engineering efforts of Skinner and other behaviourists. According to Arthur Melton (1959), software teaching is directly related to psychology of learning, which comprises behavioural changes resulting from experience. This view of educational technology is associated with modern principles and theory of teaching, models of teaching, theory of instruction, and theory of teacher-behaviour and principles of programmed learning. The components of software technology are closely associated with the modern principles of programmed learning, such as:

- Task analysis
- Writing objectives in behavioural terms
- Selection of appropriate instructional strategies
- Reinforcement of correct responses
- Constant evaluation

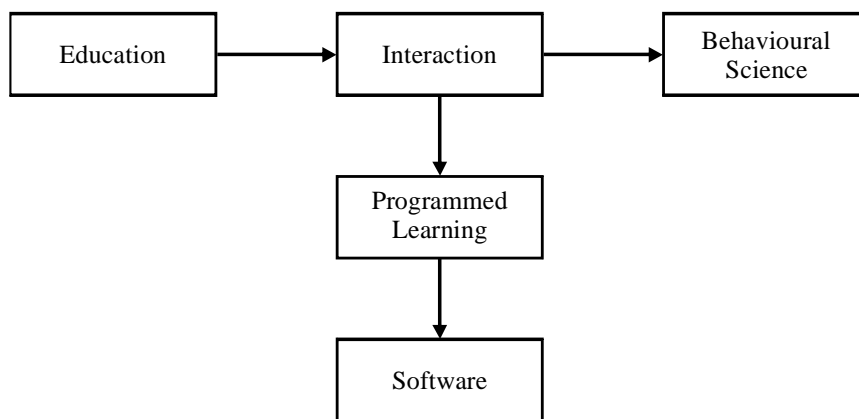


Fig. 7.3 The Software Approach

Leith observed that, 'educational technology is the application of scientific knowledge about learning and the conditions of learning to improve the effectiveness and efficiency of teaching and learning'. Silverman (1968) termed software technology as constructive educational technology due to its constructive nature. Its basic educational applications are in the analysis of instructional problems, selection or construction of measuring instruments required to evaluate instructional outcomes and construction or selection of strategies and tactics to produce desired educational outcome.

Ivor Davies, names this approach as 'the 'engineering archetype', which applies the principles of behavioural science for the betterment of learning. Despite the use of hardware, this approach focuses on the learner and the learning. Therefore, it is called the software approach. 'Technology is seen as a means of providing the necessary know-how for designing the new, or renewing the current, worthwhile learning experiences. Machines and mechanization are merely viewed as instruments of presentation or transmission' (Davies, 1978).

It was in early 1969 that software approach initially developed in the area of programmed learning. It was the outcome of Skinner's efforts on operant conditioning. In the beginning, this approach found its application in the design of materials having sequential content. Soon after, it was widely used as part of curriculum and for developing courses. Based on the engineering approach, it takes the form of a series of steps to be followed. These steps comprise a statement of inputs and definition of objectives, intermediate steps which examine and select instructional strategies and resources and a terminal step of evaluation and output. This process always includes feedback. Though conventionally, ET1 went aboard after ET2, it is not to be regarded as a successful version of ET1. The development of both versions was independent and they still exist.

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Table 7.2 Differences between Hardware and Software Approaches

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Hardware approach	Software approach
Hardware approach has its origin in physical science and applied engineering.	The origin of software approach is in behavioural science and its allied aspects concerning the psychology of learning.
It refers to the application of the principles of physical sciences or engineering and technology, in the development of electro-mechanical equipment used for instructional purposes.	It refers to the application of teaching–learning principles to direct and deliberate shaping of behaviour.
It tries to adopt a product-oriented approach.	It tries to adopt a process-oriented approach.
It helps in better communication of educational purposes. It makes teaching effective by mechanizing the teaching–learning process. It increases the efficiency of educational means and reduces the cost of education.	It contributes to increase the efficiency of teachers as well as learners. However, it lags behind in reducing the cost of education.
It comprises charts, models, slides, filmstrips, audio cassettes, sophisticated equipment, gadgets like television, film projectors, tape recorders, record players, videos, teaching machines and computers.	It comprises modern principles and theory of teaching, models of teaching, theory of instruction, theory of teacher behaviour and principles of programmed learning.
Hardware technology is concerned with production and utilization of audiovisual aid material, sophisticated instruments and mass media for helping teachers and learners to achieve better results.	Software technology, tries to exploit the psychology of learning for production and utilization of software techniques and material in terms of learning material, teaching–learning strategies, tools of evaluation and other devices.
Hardware is of no use without a suitable software that governs its working. It needs the services of software technology for its functioning.	Software approach makes the hardware functional.
Hardware is prepared by assembling different gadgets. The same hardware can be used in different fields like industry, entertainment, education, corporate sector, etc.	Silverman termed educational technology as ‘constructive educational technology’. It concentrates on the analysis, selection and construction of whatever is necessary to meet only educational requirements.

Thus, we may conclude that while the hardware approach originated from physical sciences and applied engineering, the software approach owes its inception to behavioural sciences and their applied aspects concerned with the psychology of learning.

Significance of software and hardware

The significance of software and hardware in education are as follows:

- They cater to individual differences of students.
- They contribute to the economy of time, energy and resources of teachers and students.
- They bring clarity and vividness to the subject matter.
- They help to motivate students.
- Their help in developing and sustaining the interest of the students.
- They make the subject matter interesting, attractive, inspirational and effective.
- They provide for active participation of students.

These aspects of educational technology are closely intertwined to serve the cause of education. Hence, a clear demarcation between their constituents is difficult. For every hardware, there is corresponding software, as shown in Table 7.3.

<i>Hardware</i>	<i>Software</i>
Overhead projector (OHP)	Overhead transparencies
Slide projector	Slides
VCR and monitor	Video programmes
Computer	Computer programmes
Blank paper	Written matter

It needs to be clarified here is that Table 7.3 is not an exhaustive list, but only a suggestive list of components. The list is endless and continuously growing owing to the rapid technological developments taking place and even faster adoption of these newer technologies in teaching–learning situations. What needs to be borne in mind is that with the development of new technologies, the older ones still occupy an important place in our educational system.

Non-Projected Displays

As the name proposes, non-projected displays comprise every type of visual display that can be shown to a group of students without the use of any optical or electronic projector. They use the most fundamental types of visual aids that teachers and trainers can avail. A few of the popular non-projected displays are discussed in this section.

1. Chalkboards

These boards are dark in colour, so that chalk can be used to write on them (Figure 7.4). They are the most popularly used visual aids despite the fact that overhead projectors present the same information in a better manner. This is because chalkboards are easy to handle and produce or customize during the course of a lesson; and also to explain calculations and similar exercises to a class of students. It is probably the cheapest and most widely used form of hardware in formal teaching–learning situations. A good chalkboard is 4×6 or 4×7 or 4×8 feet in size, and is made up of slate or glass. It is fixed on the wall at a height of at least 3 feet and is grey, black or green in colour. Now, we also have white boards on which we use multi-coloured pens for writing. These can be wiped off with a damp cloth. These boards are made of wood and their surface is very smooth. A chalkboard provides: (i) a visual presentation of the main teaching points, (ii) a structured record of the content of the session, (iii) a basis for summarizing, (iv) a guide for trainees to take notes from, and (v) additional effect to spoken words or lecture.

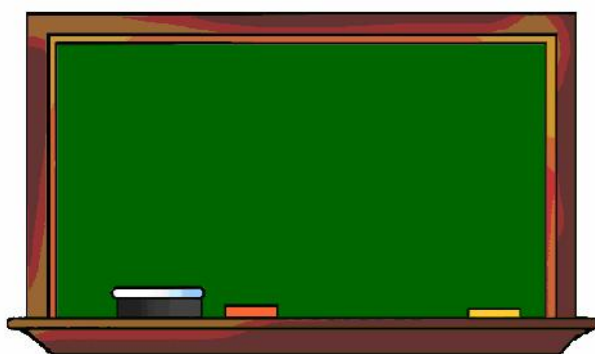


Fig. 7.4 Chalkboard

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The advantages of using chalkboard are:

- They are easily available.
- They can be used without much advance preparation.
- Notes and diagrams can be built up as the lesson progresses.
- Points can be added and deleted.
- The ideas and words of trainees can be easily included in the summary.
- Learners can be involved in writing answers, comments, etc.

The unique features and advantages associated with a chalkboard make it the most important and essential aid to teaching and learning in all the subjects of the school curriculum. It is the only aid that is easily accessible to both teachers and students for visualizing the subject matter and diversified subject areas of the school curriculum. When used by a teacher, several points should be borne in mind, such as proper selection of the portion of the chalkboard, regular and proper cleaning of the chalkboard, use of good quality chalks; suitable lettering size for visibility, appropriate angle of writing, and non-traditional use for delivering maximum benefit to students.

2. Marker boards or White board

Training halls and teaching rooms often have these boards, which are gradually replacing the conventional chalkboards. These are popularly also known as 'whiteboards'. They are big, white or light-coloured plastic sheets, with surfaces that can be written on. Writing instruments like felt pens, markers or crayons can be used to write on these sheets. Nevertheless, markerboards have the following advantages, when compared with chalkboards:

- There is a lot of mess associated with the usage of chalkboards, even when 'dustless' chalk is used. Marker boards do away with this mess.
- One can use many colours and shades for better, sharper and well-defined display of drawings and written text.
- Unlike a chalkboard, a marker board can work like a projection screen, if required.

One disadvantage of using marker boards on a long-term basis is the difficulty faced when cleaning its surface. After a period of time, writing impressions left behind cannot be erased. Hence, the use of special marker pens is advised, which are recommended by the maker of the board. The board should be cleaned regularly with a damp cloth dipped in the specific cleaning fluid or solvent.



Fig. 7.5 Marker Board

3. Electronic marker boards

As technology has developed, electronic marker boards have gained wide acceptance. Electronic marker boards have an edge over manual ones as they can facilitate photo-electronic scan of the written text or drawings on its surface. Some of these boards also have the feature of producing miniature hard copies of the material. Multiple hardcopies can be produced for distribution among members of a class or group. The use of electronic marker boards is limited owing to their high cost.

Some electronic marker boards can scan the material written or drawn on them, so this material can be practically produced and loaded on a communication network and linked with other locations. An appropriate display system can also enable one to view the material from different locations. These types of electronic marker boards offer a suitable platform for interactive communication with distance-learning students. This is the reason that they are so widely used by many educational institutes and universities that offer distance-learning courses.



Fig. 7.6 Electronic Marker board

Their utility is much higher for students in remote areas. They are popularly known as ‘smart boards’ in Indian settings.

4. Adhesive displays

Adhesive displays also fall in the category of non-projected display media. In these, the material to be displayed is stuck on the surface without the use of drawing pins or glue. Adhesive displays comprise felt boards, hook and loop boards and magnetic boards.

5. Felt boards

Felt boards are also called flannel-boards or flannel-graphs. These types of boards use shapes cut out of felt, flannel or similar material that can stick to the display surface. They make use of rationally reasonable, easily portable, and very useful technique of display. Felt board are useful for creating both permanent and temporary displays that can be mounted on walls. Nevertheless, they find most appropriate use in exhibited displays like table settings, corporate structures, jigsaw puzzles, and in fundamental mathematical and geometrical concepts.

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Fig. 7.7 Felt Board

6. Hook and loop boards

Hook and loop boards work on the same principle as felt boards. They are also known as teazle boards or teazle-graphs (Figure 7.8). However, these boards use special material (like velcro), with many tiny hooks attached to it. On the other hand, the display surface has a covering of small loops which can be attached to the hooks. These hooks and loops allow the tagging of heavier display material, as and when required. Hook and loop boards are used on the same lines as felt boards, but the added advantage is the provision to heavy display material.



Fig. 7.8 Hook and Loop Board

7. Magnetic boards

The magnetic board is also a type of adhesive board. These boards have higher utility and versatility, in comparison to felt boards and hook and loop boards. Different types of magnetic boards are available in the market. The latest version comprises sheets of ferromagnetic material, which are coated with special paint on which one can write or draw using suitable markers or pens. All types of board enable display items made of (or backed with) magnetic material to be stuck to and moved about on their surfaces.

These boards also enable movable display to be supplemented by writing or drawing on them. Thus, with the help of magnetic boards (Figure 7.9), highly complicated and refined displays can be created. These displays enable users to clearly exhibit movement and change in systems. They operate as an excellent medium to demonstrate a teaching strategy or to conduct sports related training. To create an exhibit for a basketball or a football team, a permanent field can be painted on the board. Magnetic discs can be used to identify every player. Each magnetic disc can be rearranged and moved around, as and when required. Appropriate arrows and lines made by chalk or marker pens can be used to express different movements and run patterns.



Fig. 7.9 Magnetic Board

8. Charts, posters and flat displays

Different forms of charts, posters and other flat pictorial displays have a high usage and versatility among teachers and instructors. We learn about some of the important varieties in this section.

9. Flip charts

Flip charts are one of the simplest flat type displays. Information can be effectively displayed to a class or a small group of learners through flip charts. These comprise several large sheets of paper, which are attached to a support bar, easel or a display board with the help of clamps or pins. This makes it possible to flip the charts backward or forward, as per the requirements of the teaching–learning situation. There are two basic uses of such charts. A sequential progression of already designed sheets can be displayed through flip charts. This can be done in the desired sequence by flipping one sheet over the other. The following precautions should be kept in mind while preparing flip chart sequences:

- The message on every sheet should be easy to understand.
- All that is written or drawn on every sheet should be visible to every member of the core group.
- The print quality and size should be inspected by the teacher/trainer by viewing it from every part of the room.



Fig. 7.10 Flip Chart

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Flip charts are also useful to jot down content spontaneously during the course of a session or training. They can also be used to make a listing of responses, questions and ideas from learners or concerned groups.

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10. Wallcharts

Different forms of wallcharts are used in every sector of education and training. They are widely used because they are versatile and simple. They have entered the teaching–learning scenario in the sophisticated form of visual aids. Charts and wallcharts cannot be differentiated clearly. In simple terminology, any chart that can be put up on a wall or a noticeboard can be called a wallchart. The main purpose of wallcharts is the casual study outside the context of a formal session. The information on charts has a higher level of clarity, when compared to that on wallcharts. In addition to this, they differ in their usage and construction. The common factors in both wallcharts and simple charts is that their sizes can vary and they can comprise more information when compared to overhead transparencies or a 35-mm slides.

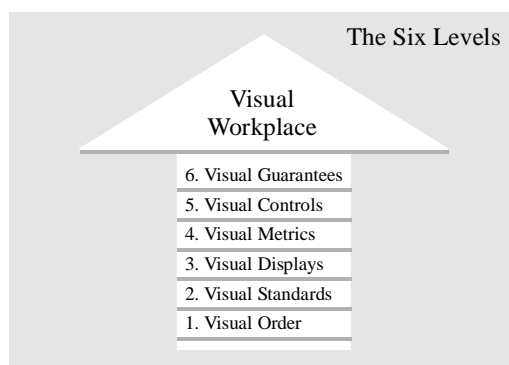


Fig. 7.11 Chart

Charts offer the following advantages:

- Clean presentation
- Portability from one place to another
- Availability of material for summing up

The drawbacks of charts are as follows:

- Limited space on each sheet
- Need to be stored carefully to avoid folds
- Cannot add or remove matter from the sheets
- Are not very durable

Charts can be used to explain important concepts and for recapitulation. Charts that can be referred to learners for content, as and when required, are called ‘reference charts’.

11. Metaplan charts

The metaplan system consists of lightweight pinboards like those made of thermocol, brown sheets, thick cards in different shapes and colours. Other materials used in these charts are felt-tipped markers and glue.

In this system, the participants are asked questions relevant to the theme of the session and to write their views on cards. These cards are collected and shuffled to ensure anonymity. Then they are read out and pinned on boards. It helps to get a collective

view of ideas from those involved. Pinboards can be as large as black-boards. The number of pinboards required will depend on the number of trainees, themes, etc. Normally, two to three boards are required for each session or theme. If there are 24 participants who are divided into three groups and three sessions to use the metaplan system, nine boards will be required. Both sides of the board can be used, which gives flexibility and space.

12. Posters

S. K. Mangal, in his book, *Teaching of Social Studies*, defined poster as ‘a graphical representation of some strong emotional appeal or propaganda carried out through a combination of graphic material like pictures, cartoons, lettering, and other visual art on a placard, primarily intended to catch and hold the attention of the viewers and then forcefully conveying and implanting in their mind a specific fact, idea or message’. Since a poster is designed to make a public announcement of a special idea, it usually includes an illustration with a brief caption. It supports local demonstrations, exhibits or activities. The purpose served by a poster can be as follows:

- Catch attention
- Create an impression of a fact or an idea
- Stimulate to support an idea
- Motivate to seek more information and to move towards action

They can be specifically used at different stages of delivering a lesson. Similarly, they can also be used in presentations, practice and recapitulation stages to focus attention of the learner on some specific idea, event or process. A good poster usually concentrates on a single idea and shows a unity of purpose. It is quite helpful in effectively impressing inherent facts, ideas or messages on the minds of children.

Three-Dimensional Display Materials or Non-Projected Displays

Display materials discussed till now were all two-dimensional displays. This section discusses a group of non-projected displays, which are three-dimensional. Non-projected displays are divided into three categories: (i) mobiles, (ii) models, and (iii) dioramas.

1. Mobiles

Basically, a mobile is a three-dimensional wallchart. However, individual components of this wallchart can be moved around. This is a system where pictures and words can be drawn on card or stencilled on some metal. Fine threads can be used to hang them separately after cutting them, instead of hanging them on a wall. The resulting display is capable of changing shape and direction, in response to air currents. These displays can be hung from any corner of a room where they are visible to anyone who enters the room.

2. Models

Models can be identified as three-dimensional representations of real or abstract items. A broad range of instructional and teaching-learning situations make extensive use of models. They are primarily used as:

- Visual support material for large-scale education
- Objects for study or manipulation in individual learning
- Construction projects for individuals, small groups or entire classes

NOTES

Check Your Progress

6. List the three approaches of educational technology as suggested by Lumsdaine.
7. What does the hardware approach to the domain of education imply?
8. Define non-projected displays.
9. Give examples of adhesive displays.
10. What are the advantages of charts?

NOTES

Models are more specifically used to:

- Modify objects so that they can be easily observed and handled; this includes both reducing very large objects and enlarging very small objects.
- Clearly demonstrate interior structures of objects or systems as two-dimensional representations are not capable to give this degree of clarity. Products of virtual-reality that provide this clarity are very expensive.
- Exhibit movement, which is not possible in case of two-dimensional displays.
- Display complex parts of a process in a simple way for learners to understand; by focusing only on significant areas and eliminating all that is complex and causes confusion.

Instructors or teachers should keep in mind that if viewed from a distance, even three-dimensional displays appear like two-dimensional ones. Hence, the distance of the learners from a model should be optimum for them to view it clearly.

3. Dioramas

Dioramas are still-display systems which can combine three-dimensional foreground images with two-dimensional background. The effect thus, created is realistic. They can be used to teach a number of subjects, including:

- (i) Biology and natural history (showing plants or animals in their natural environment)
- (ii) Architecture, geography and geology (showing buildings, cities, surroundings, primitive landscapes and sites).
- (iii) History, theatre, spiritual learning (illustrations of scenes from history or drama, stage sets and battles).

4. Still projected displays

Visual displays that are without movement are known as still projected displays. These displays rely on optical projectors. The visual aids involved in still projected displays are discussed in this section.

5. Overhead projector

An overhead projector (OHP) is a machine which projects light from a lamp through a transparent surface, onto a wall or a screen. The transparent surface (transparency) is the small sheet of plastic that has text or drawing on it. This writing or a drawing appears much enlarged and in exact form and shape, on a blank surface (wall). It helps a teacher to explain a point to the learner with the help of a visual.

Principle: Light is furnished by a 500 to 1,000 watts lamp, and is reflected upward to a projection stage or screen and into an objective lens, which is centrally supported above the stage. The light strikes a mirror and is reflected onto the screen behind the operator. The lens and mirror stand above the machine. The machine may rest on a desk or it may be on a projection stand, or table. Thus, the teacher may sit or stand in front of the class. The screen can be a flat, smooth, white/pale wall. A good and inexpensive screen can also be made from a hardboard. The rough side of the hardboard should be covered with two coats of white emulsion paint. This board may be hung in one corner of the room. The screen should not be reflective.

An overhead projector provides educators with an easy, low-cost interactive environment. Plastic sheets are used as teaching material, which facilitate the educator

to write on them with the help of non-permanent and washable coloured board pens. These transparencies can be pre-printed and used in repetition. Thus, they save a lot of time for the teacher or any other user.

The overhead placement should be such that it is convenient for the instructor to use. Further, the educator should be able face the class, to facilitate better interaction with the students. Since the projector is able to enlarge small script, the educator can write in his own desired font size. He does not need to continuously stretch his arm to write on the board. Unlike a blackboard, time is not wasted in erasing what has been written. Once transparencies are used, they can be restored to their original unused state after washing them with soap and water.

Advantages of overhead projector

An overhead projector has the following advantages:

- When using OHP, a teacher can always face the class and thus maintain eye contact with the students.
- Pre-prepared matter can also be displayed with the help of OHP.
- OHP transparencies can be used repeatedly, which gives the teacher more time to engage in discussions with learners.
- The subject displayed on OHPs also helps learners to retain the lesson learnt.
- Many techniques (free-hand writing or drawing, typing, photocopying, desktop publishing and so on) can be used to prepare OHP transparencies.
- In comparison to other types of visual aids (e.g., charts), overhead transparencies are relatively compact and can thus be easily stored in suitable boxes, large envelopes, folders or files.
- All the lights of a room need not be switched off when using an OHP. This enables students to take notes.
- Small objects may be shown on the machine simply by placing them on the projection stage. They will be projected as silhouettes.
- No extra projectionist or person is required to project.
- The clarity of display in a OHP is higher than that on a blackboard.
- The instructor may prepare an entire course which is time saving.
- The operation of OHP does not require any technical skill and knowledge making it is user-friendly. Moreover, it is also clean and quiet.

Disadvantages of overhead projector

The disadvantages of overhead projector are as follows:

- OHPs run on electricity and require white surfaces for projection.
- When compared to chalkboards, their maintenance is somewhat time-consuming.
- They have a tendency to break down at times.
- Light from the projector can be irritating.
- Sometimes, positioning of the screen becomes difficult.
- Any error in spelling or pictures are magnified and distract the participants.

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- Efficient usage of OHP requires sufficient time, effort and display material in the form of transparencies.

6. Slide projector

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Slide projector or diascope is popularly known as ‘magic lantern’. It is an optical aid to the process of teaching. It is used for projecting pictures from a transparent slide onto a wall or a screen. Since it is used to project slides, it is called a slide projector. A slide projector is useful for small as well as large groups. It comprises four sections: (i) electric incandescent light bulb or similar source of light (usually fan-cooled), (ii) reflector and ‘condensing’ lens to focus the light onto the slide, (iii) a holder for the slide, and (iv) a focusing lens. It helps to project a larger image of the slide. When the figure or illustration is very small and it is required that the whole class should see it clearly, a transparent slide of this small figure is prepared. The slide is placed inverted on the slide carrier of the magic lantern (slide projector). The slide projector projects its erect image on the wall or screen by enlarging its dimensions and making the vision sharper and clearer. A coloured slide or filmstrip is more attractive.

Filmstrip projector works on the principle of direct projection. Light rays emerge directly from the projection lamp or other source of illumination, pass through condenser lenses, the filmstrip/slide and the objective lens to produce an enlarged image on the screen. The source of light can be an electric bulb or a kerosene or petromax lantern. Images are directly projected as they are, when a filmstrip/slide is used. This allows them to be projected even if the room is semi-darkened, at a desired speed.

Advantages of slide projector

The advantages of slide projector are as follows:

- **Educational information:** The slide projector has immense educational value because of the variety of information can transmit like maps, drawings, diagrams, photographs, etc. It enables a subject to be taught clearly and in detail. To make it more effective, a tape recorder can also be used along with the slide projector. The teacher can record a narration on a tape recorder and synchronize it with the slide projector such that it gives the necessary commentary pertaining to the slide without the teacher’s intervention.
- **Motivational force:** It arouses the attention and interest of students. A projected image is more effective in capturing the attention of the audience for a longer duration. It is the best way to motivate students towards better learning.
- **Easy to transport:** Slide projectors are light and easy to transport.
- **Easy to use:** Slide projector is easy to use. It is a simple device that can be operated and focused using a remote control.
- **Consistency of images:** Images can remain on the screen as long as the students want them to.
- **Interesting:** The whole activity arouses interest in students.
- **Economical:** There is no wastage of time and energy.
- **Inexpensive:** Slide projectors are not costly. Any school can afford it.
- **Non-fragile:** It is not easily broken.
- **Non-inflammable:** It is non inflammable.

Disadvantages of slide projector

The disadvantages of slide projector are as follows:

- **Not always suitable:** Every type of material cannot be projected by the slide projector.
- **Not excessive use:** Since glass slides are becoming expensive now, the slide projectors may not be used excessively.

7. Filmstrips

Filmstrips may be used in slide projectors as well as filmstrip projectors. Instead of using different slide for different topics or more slides for one topic, one strip or piece of still film is prepared. Slides produced on films are called filmstrips. A filmstrip is made of cellulose acetate and is 16 mm or 35 mm wide and 2 to 5 feet long. It usually consists of 40 to 100 separate pictures related to a particular subject, topic or theme. These pictures may be connected with series of drawings, photographs, diagrams, or combination of these. Such a strip or a piece of still film serves the same purpose as served by a number of slides.

In a slide projector we use separate slides, while in a filmstrip a strip of film (having many slides) is exhibited. The filmstrip projector is a recent development and it is becoming a more popular means of pictorial representation. Various commercial firms sell such readymade filmstrips for different topics of different subjects for different age groups. Filmstrips are also available on loan, free of charge from the Central Film Library, Central Institute of Educational Technology, NCERT.

Advantages of filmstrip

The advantages of filmstrip are as follows:

- It is easy to operate.
- A frame may be held on the screen as long as it is required.
- Strips of educative value, according to special needs, are available.
- It is possible to review previously exhibited frames again for reference.
- It can be used to transmit varieties of information.
- Now filmstrips are available with commentary recorded on tapes.
- The teacher can also record his comments and play the tape, synchronizing it with the frame of the filmstrip.
- Filmstrips are light in weight and easy to carry.
- Even a low voltage lamp can serve the purpose while using filmstrips.
- With every filmstrip projector, a 2 × 2 slide attachment is also provided and the same projector can also be used for projecting slides.
- Its use does not restrict the normal flow of conversation between the teacher and the class.
- Numbered filmstrips are advantageous for the learner, especially when one or two students use them in independent work. Numbering makes it possible to locate the frames.
- Since filmstrips present pictures in a fixed sequence, they provide a structure for the subject.
- Filmstrips provide economic means of presenting information.

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Disadvantage of filmstrip

Filmstrips lack audition: The teacher has to work like a commentator along with the filmstrip being projected.

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8. Epidiascope

An epidiascope projects small opaque images of maps, photographs, pages of a book, etc., on a screen, in an enlarged manner. It is a combination of an episcope and diascope. The epidiascope works by reflecting light from an opaque surface (opaque projection). A lamp illuminates the material. The image is reflected by a mirror, through a lens onto the screen.

It is used for making classroom teaching more interesting and effective. This device does not require slides. Teaching aids like maps, charts, small pictures, graphs, line drawing are directly projected on the screen. The size of small pictures can be magnified or enlarged by the epidiascope. In epidiascope slides, transparencies are also used. It also facilitates books and original matter or teaching aids to be directly projected on the screen. Therefore, the epidiascope is commonly used in classroom presentations. It also makes lesson interesting and effective.

Advantages of epidiascope

The epidiascope has general and specific advantages:

General

- Easy to handle
- Projects a wide variety of materials in a magnified form
- The colour of object is also transmitted onto the screen
- Teachers can have time for class discussions
- Often, an excellent outlet for creative work
- It has a robust mechanism

Specific

- Photographs and pictures can be projected (these are difficult to draw)
- Teaching material can be directly projected from books or other original sources
- Small objects can be projected after demonstration

Disadvantages of epidiascope

Some of the limitations associated with epidiascope are as follows:

- Pages must be flat when books are being used
- Material sensitive to heat is to be avoided
- Projection by reflected light is less efficient and requires total darkness
- Machine is too bulky to be easily carried
- The operator cannot face the audience
- Projector must be kept near the screen
- Expensive in terms of cost

Precautions to be kept in mind while using epidiascope

- Before teaching, the epidiascope and the screen should be set in the classroom properly

- It requires a dark room for projecting teaching aids so that proper arrangements should be made for the purpose
- The size of teaching aids should be according to the size of the epidiascope's aperture
- The teacher should give his comments simultaneously while projecting the teaching material
- The teacher should make use of a pointer for indicating the aspects of a diagram or picture

9. Microfilm and microfiche

Microfilms are 35-mm films, which contain photographed reading material. Each frame contains materials of one page. The rolls of microfilm are placed in microfilm readers which project each page on a revision screen. Microfiche is a miniature form of microfilm. This is a sheet of film carrying many rows of images of printed matter. Microfiche is reduced in size, in comparison to microfilm. Both microfilm and microfiche can be stored, retrieved, and projected for reading. They have great educational potential.

10. Electronic resources

Electronic resources have also made their foray into the field of education, in the last century. In 1920 it was the radio, and in 1950 the television began to be used widely as educational tools. The usage of radio and television in broadcasting for education has assumed three general approaches:

- Direct class teaching:** Where temporarily, teachers are replaced by broadcast programming substitutes
- School broadcasting:** Where complementary teaching and learning resources are offered by broadcast programming
- General educational programming:** Which offers general and informal educational opportunities.

This section would discuss both of these electronic resources in brief.

11. Radio

Radio basically transmits signals through free space enabled by modulation of electromagnetic waves having frequencies lower than visible light. This is done by oscillating electromagnetic fields that pass through air and the vacuum of space, which makes electromagnetic radiation travel. By systematically changing (modulating) some property of radiated waves, such as amplitude, frequency, phase, or pulse-width, information is carried from one place to another. The oscillating fields induce an alternating current in the conductor, when radio waves pass an electrical conductor. This can be detected and transformed into sound or other signals that carry information.

According to Butcher (2003), 'Radio has been used in education ever since its availability.' Pennycuik (1993) of the Centre for International Education at the University of Sussex, states more specifically that interactive radio instruction (IRI) is characterized by 'highly coordinated' instructional materials and delivery strategies. It includes elements of active participation on the part of the students. In spite of technological advancements, radio remains the key media to which most rural people have access. Educational radio initiatives in different developing countries were effective in providing topical programmes and reaching large numbers of learners rapidly. Further, radio broadcasting is one of the greatest educational tools, which has ever been placed at the disposal of civilized man. It

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is an instantaneous and universal means of communication. Broadcasting is relatively new, as far as its age is concerned. However, in a short period, it has been determined definitely that it can perform three separate major functions— (i) it can sell goods and services; (ii) it can provide entertainment; and (iii) it can make education, culture and information available. Radio can be educative in formal as well as informal situations. The medium of radio is very effective for broadcast of lectures by eminent educationists, scientists, historical statements, etc. It is a rich medium for broadcast of drama, stories, commentary, sports news, educational news and educational programmes. It is popular in both urban and rural settings. Radio programmes are generally prepared on topics which are more suitable to verbal communication. In India, AIR and other radio channels render valuable assistance to classroom instructional programmes. The limitations of radio broadcasting are:

- It uses only the sense of hearing.
- It is one-way communication.

12. Television

Education television excels as a medium of large-scale delivery of information. In the modern times, television is an integral part of the culture. TV provides entertainment, news, education, culture, weather, sports, etc. Television is the most powerful medium of mass communication that has ever existed and it has revolutionized our life in many ways. It appears that the future television is going to have definite positive contribution to make children's life in the classroom happy (M. J. Apter). Television is already widely being used in schools. It is a powerful medium of communication that calls for the use of auditory as well as visual sense of learners in receiving education.

Television offers many benefits to children and learners in general, including:

- It enables the sharing of cultural experiences and thus brings the world closer.
- In Indian setting, specifically where togetherness is valued, shared viewing of programmes gives the family members of all ages, an opportunity to spend time together.
- Television can be used by parents as a catalyst to get children into the habit of reading. This can be done by following up televised programmes through books on same subjects.
- Exhibiting social responsibility, television can spread cultural and family values in an implicit manner.
- Television programmes provides an opportunity to parents to explore and discuss controversial or sensitive issues with children.
- Learning skills and even socialization of young children can be developed through balanced and efficient use of educational programmes.
- Young people can become more aware of other cultures and people through news, current events and historical programming.
- Documentaries can give rise to judgmental thoughts concerning society and the world.
- The world of art and music can be opened for people by cultural programming on television.

- Televised instructions have the potential of improving the process and products of learning as they involve thorough planning, systematic presentation and integration of a wide range of audiovisual material and appliances.

Television is an important aid to teachers, supervisors and educational planners. It has been utilized for informal and formal education and for distance and correspondence education. There are some limitations associated with television in the form of one-way communication, impersonal nature, passive learning, no interaction, and expensive media.

India, like other developing countries, has been using television for enriching and improving the quality of education at every level. It has been particularly used for expanding educational facilities, particularly in rural and backward areas, for normal and informal systems. New dimensions have been added to the use of television for instructional purposes with the advent of satellites. So far there has been use of open circuit television in India. Closed circuit use of television for educational purposes has not been explored much. Closed circuit television broadcasting is a sort of micro-level local arrangement limited to a single school, or several schools located in a particular region. The schools are connected by a cable or microwave system. The telecast cannot be received outside the selected network and signal is not required to meet the commercial broadcasting regulations.

13. Closed Circuit Television (CCTV)

Television systems have assumed an important place in our daily life as they are one of the most indispensable means of information and communications. Television broadcasts are a form of 'open-circuit system', which are accessed by indefinite number of people. Another form of circuit systems are 'closed-circuit systems', which are designed to provide video to specified viewers. CCTV system is a system that has been primarily designed for surveillance purposes. CCTV is very useful in areas associated with security, disaster prevention, energy and manpower saving, sales promotion and information services, production management, industrial measurement, medical care, education and military fields. Specifically in the field of instruction and education, CCTV has a wide applicability. It enables schools or institutions to develop and allow their students to access specific programmes that are needed for their overall growth and development.

The definite advantages offered by CCTV have been highlighted as follows:

- Many CCTV systems are suited for distant viewing. The images broadcasted by them probably comprise photographs from space, snapshots of furnaces or other industrial equipment, biological hazards, etc.
- The use of CCTV would ease the shortage of good instructors or teachers, reduce instructional costs, provide uniform instructions to a large number of students simultaneously, and facilitate repetitive representation of resource persons or material.
- The use of CCTV provides a platform for desired exchange of man-material resources, learning and instructional activities, courses and events not only among students and staff of the same institution, but also among various institutions on the network of CCTV.

14. Video Cassette Reorder

The video cassette recorder (VCR) is an electronic device that plays VHS or beta tapes containing recorded movies and other programmes (like music videos and exercise videos).

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A VCR has to be connected to a TV for viewing a recorded programme. A number of variants of VCR have been produced over the years, in addition to the traditional home VCR. These include combined 'all-in-one' devices such as the televideo (a TV and VCR in one unit) and DVD/VCR units and even TV/VCR/DVD all-in-one units. A camcorder merges a video camera and VCR in one machine.

VCR can not only play pre-recorded cassettes, but also record any programme and replay it. Thus, educational television programmes can be recorded and later on shown to students. With the help of video cassette recorders, educational and other useful events can be recorded for teaching purposes. The replay of those programmes in colour makes viewing very interesting and leaves a considerable impact on viewers.

Advantages of VCR

The advantages of VCR are as follows:

- The operation of a video cassette recorder is very simple.
- It is portable and can be moved from one place to the other easily.
- Knowledge acquired by video is permanent.
- It is helpful to students in providing them knowledge of social and political conditions of different countries.
- It is helpful in developing the thoughts and reasoning power of students.
- It is equally useful for children of varying abilities.
- The teacher can remove the doubts of students simultaneously, which is not possible in a television lesson.
- The teacher can control video presentation.
- Pictures on a VCR can be repeated as many times as required.
- Video films on different teaching subjects are easily available.

15. Motion picture

A motion picture (sometimes called a movie or film) is a series of still pictures (frames) usually 8 mm or 16 mm in size, taken in rapid succession. When projected by a motion picture projector, they give an illusion of motion (Gerlach and Ely, 1980) Films vary in length from one minute or less, to 50 minutes or more. If a 6-mm motion picture runs for more than 50 minutes in length, it is usually stored on two or more reels. The speed at which a film is projected varies with the format of the film. A sound 16-mm film is projected at 24 frames per second (fps) and super 8-mm films, at 18 fps. Therefore, it is possible to show films in such a manner as to create three types of images:

- (i) Normal motion
- (ii) Fast motion
- (iii) Slow motion

Motion pictures are very useful in teaching various subjects like literature, drama, history, geography and science subjects. Motion pictures motivate students as they enjoy the medium. They bring people, country, events, etc., on the screen. However, they are expensive and subject to damage, if used extensively.

Hoban and Ormer have revealed the following educational advantages of motion pictures:

- Good films can be used as sole means of imparting certain factual information and developing performance skills.
- Pupils will change or develop attitude and opinions, as a result of viewing films.
- Pupils will learn more from films if they are properly prepared and motivated.
- Learning will increase with repeated screenings of a film. Short single-concept films have certain advantages.
- Pupils can develop the will of problem-solving by viewing well-produced films.
- The ability to learn from films will increase with practice.

Amidst these advantages, it should not be assumed that learning would occur only by watching films. The method of presentation may be inadequate or the film may not be suitable for students of a particular age. Therefore, sufficient care should be taken while selecting a film. It should be borne in mind that films with built-in viewer participation and repetition of key points increase learning. If these factors are lacking in a film, then these should be supplied by the teacher during or immediately after screening of the film.

16. Tape recorder

An audio tape recorder, tape deck, reel-to-reel tape deck, cassette deck or tape machine is an audio storage device that records and plays back sounds, including articulated voices. It usually uses magnetic tapes, either wound on a reel or in a cassette, for storage. In its current form, it records a fluctuating signal by moving the tape across a tape head that polarizes magnetic domains in the tape, in proportion to the audio signal. There are many types of tape recorders in existence, from small hand-held devices to large multi-track machines. A machine with built-in speakers and audio power amplification to drive them is usually called a 'tape recorder'. If this machine does not have the record functionality, it is a 'tape player'; while one that requires external amplification for playback is usually called a 'tape deck' (regardless of whether it can record).

The invention of tape recorder has brought about a revolution in the teaching-learning process. Its main function is recording and reproducing of sound. Microphone, amplifier and reproducer are its three parts. It is an instrument which is used to record speeches, songs, music, etc. It may be played back at any time and any number of times. Teaching with tape recorder is an extension of a teacher's work.

The educational utility of tape recorder in education has been highlighted in the following points:

- There is no fixed time schedule for tape recorded programmes and thus, no changes are required in the school timetable. It can be used anytime and anywhere.
- It helps in supplementing the educational output of radio and television broadcasts and guest lectures.
- Recorded educational programmes can be used for instruction in schools and colleges.

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- It helps students in developing oratory skills by repeated practice. Further, it helps in overcoming poor speech habits and correcting speech defects.
- Tape recorders are immensely used in developing conversation skills, expression power and techniques of dramatization.
- They are significantly used in teaching specific subjects like music, dramatics and language.
- They are also used in organizations for conducting and evaluating various co-curricular activities.
- They may help in modification of behaviour and for encoding classroom events.
- They can supplement other educational tools like projectors, video players, etc.

A tape recorder is very easy to operate and useful in group teaching as well as individual learning. It is also easy to erase a recording, if not required.

17. Computer

A computer is an electronic device that accepts data, performs operations on it in a sequence (decided by a programme) and gives the resulting output. Computers can be of various sizes and types like mainframe computers, mini-computers and microcomputers. Apart from size, computers are differentiated according to their specifications. These specifications include the amount and type of storage, capabilities of the central processing unit (CPU), and type and nature of the peripheral equipment (such as disc storage) that can be connected to it.

A computer has several applications in instructional situations. It is used to analyse the level of knowledge in entry level students, at the time of enrolment. It is also used to plan and print individual programmes, monitor a student's progress and compile tests and scores. Computers are aid to the instructional process of education. In terms of technological advancement and educational utility, they have surpassed all the audiovisual aid material and equipment. The demand for computers is increasing day by day, at all levels of education.

In various forms and at various levels, computer technology has been able to make a strong impact on education. The advantages of computers in education include efficient storage and rendition of information, quick information processing, and the most important benefit being saving of paper.

Some of the characteristic features of application of computers in education are:

- Modern systems of education have been greatly influenced by the usage of computers. Students find it easier to refer to the Internet for searching information rather than look for it in books. The process of learning is not limited to learning from prescribed textbooks, it is much more.
- Computers have played an essential role in promoting education to a large number of learners. By taking education outside the classroom, this technology has made the dream of distance learning a reality. It has been able to bridge geographical barriers in the process of education. In other words, computer networking has brought physically distant locations closer. This has benefited all those, who are in the field of education.
- Efficient storage and effective presentation of information has been enabled by use of computers. There are several presentation software like PowerPoint and animation software like flash, which have proved to be of immense help to teachers while delivering information.

- Computers have the potential to add an element of fun to education. It is a good break from the monotony of ‘chalk and talk’ classes. They can turn out to be a brilliant aid in teaching, if used properly. Computers facilitate making the process of learning interactive and interesting by audiovisual presentation of information.
- Computers have helped in going ‘green’. They help in saving paper by facilitating an electronic format for storage of information. There have been instances where schools have gone far and even collected homework and test assignments as soft copies and thus saved paper. It is well known that electronically erasable memory devices can be used repeatedly. They offer a robust storage of data and reliable data retrieval techniques. Computer technology thus eases the process of learning.
- The Internet can play a significant role in different aspects of education. Being a colossal information base, it can be used well for retrieval of information on a wide variety of subjects. There is no subject taught to students for which the Internet cannot be used to gather information.

Though computers have contributed in different spheres of education, the most important contribution is in the domain of instruction; in the form of Computer Assisted Instruction (CAI) and Computer Managed Instruction (CMI). Here, it needs to be emphasized that computers should be used as an educational tool, rather than a means of education. Nothing can replace interactions between students and teachers.

7.4 LIMITATIONS OF EDUCATIONAL TECHNOLOGY

From our discussion so far, we have understood that educational technology is the effective use of technological tools in learning. As a concept, it concerns an array of tools such as media, machines and networking hardware, as well as considering underlying theoretical perspectives for their effective application. The limitation of educational technology, hence, are the limitations of the tools that are used to serve identified educational goals.

1. Limitations of radio broadcasting

The different limitations associated with radio broadcasting are:

- It is not a flexible medium, and there is no face-to-face interaction. It is a one-way communication process.
- It cannot be effectively used for all subjects, especially science subjects.
- Production of radio programmes requires expertise.
- It is only an auditory presentation.
- Radio cannot offer personal contact, unlike the classroom teacher.
- Radio lessons cannot account for the presence of listeners (as with books) or whether they are listening or not.
- Radio cannot take into account individual differences in the class. The broadcasts cannot do much more than assuming that every pupil at a certain level is able to comprehend everything. Furthermore, immediate feedback is another thing which is missing in the radio broadcast, where there is face-to-face discussion.

To overcome these drawbacks, preparation, supporting materials and follow-up exercises are recommended when possible (McIsaac and Gunawardena, 1996).

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NOTES**2. Limitations of television broadcasting**

The potential of television, for that matter any media, depends on its utilization. In spite of the different advantages associated with television, it has its own set of limitations. Some of the distinct limitations associated with television are:

- It provides one-way communication. There is no interaction and hence it does not offer any possibility of immediate feedback. This limits the interest and enthusiasm of learners.
- Television broadcasting does not have several features available in printed media such as learner-control and self-pace.
- There is no face-to-face contact and exchange of abstract ideas that need interaction and deep explanation.
- In terms of cost effectiveness, the cost of production, equipment and transmission per hour are very high in comparison to other media.

3. Limitations of teleconferencing

Teleconferencing has certain inherent limitations due to which it is frequently used in distance education. Some of these uses are as follows:

- Teleconferencing requires a large and efficient telephonic, radio and television network throughout the country.
- The chances of technical breakdown are quite high.
- Telephone charges are very high, which all educational institutions cannot afford.
- Teleconferencing is a costly technique of instruction. It requires sophisticated technology and expert human power.
- Teleconferencing is a mode of group communication, so the willingness of each participant is an essential requirement, but this is generally lacking especially among distance learners.
- Teleconferencing has its limitations, but these can be overcome to a great extent by planning, organization, corrective measures and using appropriate content and management.

4. Limitations of computer assisted instruction

Although computer assisted instructions are very useful in various ways, they also have their limitations that are very difficult to overcome. These limitations are as follows:

- It will harm the equity of education and increase educational costs. Low budget schools and low-income students usually cannot afford a computer. Therefore, for poor schools and students it will create unfair educational conditions. On the other hand, expensive hardware and software also becomes a big obligation for schools.
- Basic technological knowledge is necessary for both teachers and learners to use this technique. No student can benefit from the computer if he does not know how to use it.
- Computers cannot handle unexpected situations. Due to the limitations of a computer's artificial intelligence, computer technology is unable to deal with unexpected learning problems and respond to learners' questions immediately as teachers do.

- There are many disciplines which have no instructional package available or these packages are still in planning or developmental stages.
- This innovation may dehumanize the educational system by making teaching–learning process lifeless and mechanical.
- Physical problems, like vision disorders, are reported in individuals as a result of continued computer usage.
- Sometimes, the mechanical use of computers may prove boring and tiresome.
- It is very difficult to adjust the curriculum and timetable of schools in accordance with CAI.
- All students are not able to access CAI, hence it may discourage them and give them a feel of inferiority.

Reasons for Failure of Educational Technology in India

While field research exposed us to a wide variety of perspectives on educational technology Below are four major reasons why technology initiatives often fail in India:

- **Knowledge gaps:** A limited knowledge of technology’s potential and specific capacities in schools leads to an underutilization of the technology that is present in schools. Clear learning goals for technology in the classroom are not established, and rather than focusing on highly marketable computer literacy skills, students use technology in less impactful ways.
- **Resource limitations:** Inconsistent cash flow from low-income parents face cost constraints that makes it difficult to acquire all the resources necessary to maintain and maximize the use of technical tools.
- **Cultural barriers:** Some implementations are stalled because some view technology as a marketing tool to be preserved rather than an educational tool to be used. There is also a reluctance to try new devices in front of students when the teacher-centered pedagogy places her as the expert in the class.
- **Logistics challenges:** Some schools have limited infrastructure and place many academic demands on students. They may have trouble finding a room or adequate time to dedicate solely to the use and adoption of new technology.

Research also revealed a number of opportunities to improve education through technology for all users in low-income schools in India. These opportunities call for innovations in content development, hardware development, service elements of tech providers, and socio-cultural integration in the lives of individuals.

7.5 SUMMARY

- Educational technology (ET) is a rational and realistic quest concerned with every feature of design and most favourable organization of educational systems and sub-systems. It governs the relation between inputs and desired results and the allotment of resources to get those results.
- Educational technology is comprehensive. It is associated with all aspects of the educative process: methods, teaching strategies, learning materials, handling of various equipment, etc.

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Check Your Progress

11. What are still projected displays?
12. What is the main drawback of filmstrips?
13. What are the instructional applications of a computer?
14. Why is radio considered to be a mass media?

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- Educational technology is the scientific use of methods and methodologies employed to achieve the goals of education.
- In early days, the concept of educational technology was limited to audio-visual aids meant for direct teaching–learning processes. However, in the present times, with the advent and predominant usage of technology in education, the scope has been well understood and expanded.
- Educational technology includes, but is not limited to, software, hardware, as well as Internet applications and activities.
- In Indian educational system, there is a wide scope for educational technology, i.e., to educate the masses, store historical information, collect large amount of information, as an alternative to hazardous, costly, or non-feasible experiments by simulation.
- Educational technology also provides the facility of distance education methodology. It provides an alternative method of learning for those who struggle to learn using traditional methods.
- Educational technology can be used to address multiple intelligences and also to provide authentic learning experiences to students. It helps to prepare students to be performance-oriented.
- Educational technology can be used to enhance the subject-matter knowledge of students with the help of personalized instructions. It helps to improve the outlook of students toward learning and prepares them professionally. It also proves to be cost effective.
- In an effort to reach the set objectives, educational technology as a discipline adopts three different approaches: (i) hardware approach, (ii) software approach, and (iii) systems approach.
- Educational technology, based on hardware approach has its origin in physical science and engineering; and is based on the concept of service, i.e., use of technology in education.
- The software approach of educational technology has its origin in behavioural sciences. Having originated from the theories of learning, this type of approach can help in a big way in the development and utilization of programmed learning material, teaching–learning strategies and various types of software programmes and material.
- The third approach, i.e., systems approach refers to the methods of performing tasks in a systematic way to design, carry out and evaluate the total process of education.
- The basic assumption of systems approach is that teaching is a science; a professional activity aimed at achieving certain educational objectives.

7.6 KEY TERMS

- **Educational technology:** The application of scientific knowledge and learning and the conditions of learning, to improve the effectiveness and efficiency of teaching and training is known as educational technology.
- **Media:** Audio or visual or both audio-visual media, such as radio, tape recorders, charts, posters, films and educational television used as teaching aids to supplement effective teaching and promote better learning is known as media.

- **Teaching technology:** It is a form of educational technology concerned with making the process of teaching more systematic.
- **Instructional technology:** It is a systematic way of designing, carrying out and evaluating the total process of learning and teaching, in terms of specific objectives based on research, human learning and communication.
- **Non-projected displays:** Every type of visual display that can be shown to a group of students without the use of any optical or electronic projector is known as non-projected displays.
- **Hook and loop boards:** These boards use special material (like velcro), with many tiny hooks attached to it.

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7.7 ANSWERS TO ‘CHECK YOUR PROGRESS’

1. Educational technology is a scientific blend of methods and processes, designed to achieve educational goals. It comprises identification of educational goals systematically and recognizing the diversity of learners’ requirements.
2. Technology of education means applying resources of the knowledge of science, systematically, to the process of learning. Every individual has to go through this process of learning so that he/she can acquire and use knowledge. Technology in education refers to the use of technological hardware in education.
3. The main objectives of educational technology are:
 - (i) To modernize learning methods and techniques according to the changing world.
 - (ii) To bring desirable changes in behaviour of teachers and pupils by improving teaching, learning and evaluation conditions.
 - (iii) To make classroom teaching clear, effective, objective and scientific.
4. The three types of educational technologies are: (i) teaching technology, (ii) behavioural technology, and (iii) instructional technology.
5. The basis of different types of educational technologies are as follows:
 - (i) Teaching technology is based on philosophy, psychology and science
 - (ii) Behavioural technology is based on psychology
 - (iii) Instructional technology is based on psychology and science
6. Lumsdaine suggested the following three distinct approaches to educational technology:
 - (i) Educational technology I or the hardware approach
 - (ii) Educational technology II or the software approach
 - (iii) Educational technology III or the systems approach
7. The hardware approach implies the use of mechanical materials and equipment in the domain of education.
8. Non-projected displays comprise every type of visual display that can be shown to a group of students. These types of displays do not make use of any optical or electronic projector.
9. Felt boards, hook and loop boards, and magnetic boards comprise adhesive types of displays.

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10. Charts offer the following advantages:
 - Clean presentation
 - Portability from one place to another
 - Availability of material for summing up
11. All visual displays, which do not incorporate movement and require an optical projector of some nature in order to show them to a class are known as still projected displays.
12. The main limitation of filmstrips is that they lack audition. The teacher has to do the work of a commentator.
13. Instructional applications of computers lie in software packages used by students and faculty in classrooms and computer labs, course assignments, tutoring modules, supplement instructions.
14. Radio is a form of mass media because it reaches remote corners of the country and has no physical hindrance. It also imparts language education and provides entertainment, and disseminates information to listeners of all types.

7.8 QUESTIONS AND EXERCISES

Short-Answer Questions

1. What are the three components of educational technology as per S. P. Ruhela?
2. What according to Hilliard Jason are the objectives of educational technology?
3. What purposes does technology serve in education?
4. Write a short note on technology in education and technology of education.
5. What is the key function of educational technology, according to Henry Ellington?
6. List some audio-visual aids used in the hardware approach.
7. Why are wallcharts so widely used in every sector of education and training?
8. What is a motion picture?

Long-Answer Questions

1. Explain the concept of educational technology.
2. Discuss the contribution of educational technology to education.
3. Differentiate between instructional technology and behavioural technology. Give examples for both.
4. Explain the scope of educational technology and clarify the importance of this subject keeping in view the conditions of developing countries like India.
5. What are the various forms of educational technology? Differentiate between them.
6. How does the knowledge of educational technology aid the teacher in the teaching-learning process?
7. What is behavioural technology? Discuss its various uses and applications.
8. Explain in detail the hardware and software approaches to education and their scope in Indian context.

7. How can systems approach be applied in a classroom? Support your answer with an example.
8. Discuss the uses of tape recorder as a teaching aid. Give examples to elucidate your answer.
9. Give a detailed account on the role and utility of computers in the field of education.
10. Discuss the role of non-projected displays in the teaching–learning process.
11. Television has brought a revolution in the field of instruction. Explain this statement according to the current scenario.

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UNIT 8 EDUCATIONAL SOCIOLOGY

Structure

- 8.0 Introduction
- 8.1 Unit Objectives
- 8.2 Meaning, Nature and Scope of Educational Sociology
- 8.3 Social Development and Education
- 8.4 Social Factors in Education
 - 8.4.1 Education as a Social Sub-System
- 8.5 Socialization
 - 8.5.1 Stages of Socialization
 - 8.5.2 Types of Socialization
 - 8.5.3 Theories of Socialization
- 8.6 Summary
- 8.7 Key Terms
- 8.8 Answers to ‘Check Your Progress’
- 8.9 Questions and Exercises
- 8.10 Further Reading

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8.0 INTRODUCTION

The term sociology has been derived from the two words: *societus* which means society and *logos* which means science. Thus, from an etymological point of view sociology is the science of society.

Auguste Comte, who is known as the father of sociology, used the term for the first time in 1937, while delivering a series of lectures. He introduced sociology as a fundamental science in his book *Positive Philosophy* and employed scientific methods to collect data about mankind.

Children in society differ from each other in terms of their gender, family, social environment, class, caste and racial backgrounds. They are exposed to different child rearing practices that are known to have an indelible impact on their personality and cognitive abilities. These differences among children influence and are themselves influenced by classroom processes in a manner which reinforces differences among them, facilitating learning among students from a favourable background and at the same time, inhibiting learning among those from a relatively disadvantaged background.

Here we discuss the meaning, nature and scope of educational sociology and the relationship between society and education. In this unit we seek to understand the manner in which differential socialization practices and patterns in a society shape people's self-concept and personality, thereby leading to differential educational experiences in schools. The differences which the students carry from their homes to the classrooms have an important bearing on their performance and achievement levels in education.

8.1 UNIT OBJECTIVES

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

- Reiterate the meaning, nature and scope of sociology
- Discuss the affect of education in the development of society

- Explain the meaning of socialization
- State the stages and types of socialization
- Discuss the theories of socialization

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8.2 MEANING, NATURE AND SCOPE OF EDUCATIONAL SOCIOLOGY

Sociology, according to Duncan, is the scientific study of dynamic processes of interactions of person and the patterns which form in relation to biological, psychological and cultural influences. It studies social phenomena, social organizations and cultural patterns. It seeks to discover the laws that govern social relations and the forces that develop the personality of an individual. It is built upon the study of the behaviour of ants, birds, and primitive men. It has drawn for its material on social history and social physics. It has received impetus from biology and psychology. Sociology is based upon two fundamentals:

- (i) Each individual is born into a cultural world created by his predecessors. This world has a continuity of existence. It appears to be independent of individuals who enter or leave this culture stream.
- (ii) The individual becomes, as he grows up, identified with the vast body of culture, and finds his role in it. He further seeks to modify it in his dealings with the world around him. Thus, he becomes not an individual that he was at birth, but a person.

Meaning

Educational sociology is a synthesis of education and sociology. It is the study of the principles of sociology of education. It is a science born of sciences. According to E. George Payne, educational sociology is an applied science in the field of sociology. It is concerned 'with the effect of learning on group life and in its turn the effect of smaller group life upon the larger group', since the subject matter of educational sociology is the process of social interaction. 'Of both the individual and his social environment', says F. G. Brown, it is 'neither education nor sociology alone; it is education and sociology when these are both considered as a total educative process'. Educational sociology utilizes all that has been learned in both fields but joins them in a new science which applies sociological principles to the whole process of education, including subject matter and activities, method, school organization and measurement.

Nature

Educational sociology is not merely theoretical, i.e., it does not merely study the forces of interaction between the individual and the society or the group, but it is also practical because besides studying the interacting forces, it tries to regulate and control the interacting forces.

It is the job of educational sociology to find out ways and means as to how to manipulate the educational process to achieve better personality development and thus, better social control.

Importance

There is, explains Brown, 'a constant interaction of the individual and his cultural environment. He is influenced by it. This constant interaction, which is the subject-

matter of educational sociology, is the basic pattern of life'. Any attempt, therefore, says Brown, to understand and foster the development of the individual and every effort to provide the means and agencies for such development must be based upon an analysis of this two-way process in which the individual and the forces external to him are in continual interaction.

Also, this interaction is inevitable. Man must be able to control the physical and social forces around him if he is not to fall a passive victim in the continuous struggle for existence. By his inventions, he has been able to harness the forces of nature, and to eliminate time and distance through radio and television. But these physical forces, like the hydrogen bomb and atomic energy, unless directed by him wisely, would be let loose on him and destroy him and his social organizations. This is the vital, gripping and urgent problem of the day. As never before, man must learn the ways and means of controlling human behaviour, his own and others. It is, therefore, very important for an individual to have some grasp of the interrelations of nations and the social forces that influence their policies and activities.

Moreover, the knowledge of a total social life enables a child to choose his own patterns of social behaviour, to control his own behaviour patterns and of other individuals and groups. One's attitude towards state, religion and other communities is often the product of group associations. An intelligent study of these attitudes should guide one in adopting the right social attitudes.

Also, biology and psychology have, no doubt, probed and gauged the less tangible forces within man and helped us to understand him better. But man is an integral member of the many groups amongst whom he lives and moves. He cannot be understood independently of these: family, church, community, nation, means of communication, folkways and more. It is no longer enough for us to understand the individual without knowing or understanding the interacting forces that are working on him. Education must, therefore, go beyond the individual and reach out into the total social milieu.

There is a two-fold approach to the study of the development of the child; one from the viewpoint of the individual, and the other from that of the society. The individual approach is studied by biology and psychology, while the 'societal' approach concerns sociology. It is, however, contended that the individual approach is inadequate and incomplete, and must therefore, be reinforced by the societal approach also.

Both biology and psychology have been found to be incomplete in explaining human behaviour and, therefore, need to be supplemented by educational sociology. It was claimed in the beginning that biological factors had a direct bearing upon human behaviour. The 'mechanistic school' held that an individual was the product of innate characteristics and influences—both animal and human—which were beyond his control. But recent research has revealed that these were not the sole or primary factors, but only a part of the infinitely complete forces that develop and mould the individual. Some of these forces are inherited and predetermined; some are capable of modification to an appreciable extent; while others are the product of environment.

Psychologists, on their part, hold that human behaviour is determined by instincts. The 'instinctive behaviour patterns' are unlearned, relatively stereotyped and automatic. But observation of dogs, apes and infants stimuli, including the learning process, the nature of response to a specific action, conditions the behaviour of man or animal. Therefore, environmental factors and motivation are as important as innate characteristics

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in the development of the individual. Psychiatry too has moved far away from what Freud thought it to be — to unravel the complex factors which are the causes of behaviour. Now psychiatry takes the whole physical and cultural background into consideration.

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Scope of Educational Sociology

The subject of educational sociology, as we have seen above, is the constant and dynamic interaction of the individual and his cultural environment or the basic pattern of life. It is, therefore, according to Dodson, interested in three things: total cultural milieu, the school as its agency and the educational process that conditions personality development.

- The social milieu can be broken up into, what Payne calls, social independencies. These are institutions, social groups, social customs and conventions. Through these the individual gains and organizes his experiences and these influence the evolution of the educational system because it equips the youth with knowledge and character to function and fit into society. Educational sociology deals, therefore, with groups like the family, school, team, club, union, community, church, state and the world.
- In the second place, it is concerned with the sciences which help to understand its function in its various aspects. It is consequently not concerned with aspects of any science which does not condition personality development. It is, however, concerned with the school which is a specific educational agency as well as with other social agencies like the family, the play group, the church, school union; club, social customs and the mode of living, which all of which contribute to the development of personality. The personality of an individual first develops in the family through the process of interaction. The business of educational sociology is to discover the area of interaction within the family and then in the school or elsewhere. Sociology would, however, confine itself to the history of the development of family and its various patterns. Sociology deals with social theory and group phenomena, but ignores the educative process and the educational agencies.
- Next to sociology, educational sociology is related to educational psychology. Both of them deal with the school as the agency of education. Both seek to determine and influence the school's effect upon individual behaviour. Both are applied sciences. Educational psychology is applied to learning, while the other studies impact the effects of learning. The latter deals with individual's relation to society. While the former is interested in the techniques of building new habits into the child. The latter regards school as a social institution, a part of total social milieu; a form of collective behaviour and so shapes its curriculum, its teaching methods and its organization so as to prepare children for further participation in social life. In short, the former deals with the process of learning, while the latter deals with the problem of personality or behaviour.
- Psychology has been delving deep into the human mind to discover its peculiar pattern, but experimental studies of infant behaviour conducted by Gesell have led him to the conclusion that 'infants are individuals – individuals in the making as well as by birthright. The child's personality is the product of slow and gradual growth.mental growth is a patterning process, because the mind is essentially the sum total of a growing multitude of behaviour patterns.' The most significant recent development in psychology, says Brown, has been the increasing recognition of environmental factors in the development of personality and in the specific processes of learning. The borderline between psychology and sociology is not

sharp today. Moreover, educational sociology manipulates these environmental factors in the interest of interaction. Biology offers us the data that forms the basis of individual behaviour. Sociology studies how the laws of heredity and impulses determine an individual's interaction with others as individuals or as groups. Educational sociology goes a step further. It seeks to influence this interaction in harmony with social ideas.

Aims of Educational Sociology

Educational sociology, according to Herrington, has four specific aims. They flow from the larger aim, i.e., to achieve better personality development by influencing the processes of education. The specific aims deal with the various aspects of the total social milieu as well as the means, the methods, the curriculum and the agencies of education. The achievement of these aims is essential for the achievement of the larger aim. Educational sociology should explain (a) the role of the school in the community (b) the role of the school (c) and the social factors influencing schools. Secondly, it should understand democratic ideologies, cultural, economic and social trends that influence formal and informal agencies of education. Thirdly, it should estimate the social forces and their effects upon individuals. Fourthly, it should socialize curriculum. Lastly, in order to achieve these aims, educational sociology should encourage research and critical thinking, and adopt the results thus obtained.

8.3 SOCIAL DEVELOPMENT AND EDUCATION

To make the society worth living, education and society should be closely associated with each other. They should depend on each other for their growth and development. If we neglect this contact, education would remain ineffective and artificial and cannot be used as an instrument of social progress. Education, therefore, is a society in miniature, where students and teachers function together by a code of conduct that directs their behaviour. Organizations of activities like prize distribution ceremonies, athletic events, education assemblies, and clubs are integral part of the education culture. These are some important features of social life. To supervise the rights and duties of the members of education there are some authorities also. The relationships between the administrators and teachers, teachers and teachers, students and teachers, determine the efficiency of the education system. Thus, education is a social organization.

According to Nunn, 'Education may be called either a natural society or as an artificial society'. Education becomes a natural society when there is no possibility of break of the conditions of life both inside the Education and the society outside it. Nothing can be forced upon the children to learn. Regarding education as an artificial society, Nunn says, 'A nation's education, we might say, is an organ of its life, whose special function is to consolidate its spiritual strength, to maintain its historic continuity, to secure its past achievements, to guarantee its future.' Thus, education is an idealized epitome of society, which extends its boundaries to humanity at large.

The school, in order to function as a society in miniature, should organize activities like morning assembly, ceremonies and functions like the prize giving ceremony, games and sports, debates, and seminars to cultivate community feeling, teaching of subjects like history, music, art, and literature should also be recognized. Student's self-government should be organized to provide training for leadership and community living. Thus, we can relate education to life and society.

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Check Your Progress

1. How did E. George Payne define educational sociology?
2. Name one goal of educational sociology.
3. Give one reason why the study of educational sociology is important.

Education and Social Change

Some of the ways in which education affects social change are listed below:

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- Education helps perpetuities, stabiles and consolidates some eternal values by means of its programmes and application thus inculcating faith in social change.
- Helps understand and accept the emerging social change smoothly and willingly.
- Education determines the desirability and efficacy of the social changes by continuous and critical evaluation.
- Prepare ground for social change by generating public opinion.
- Education is a means of conserving and transmitting culture from generation to generation facilitating social changes at appropriate time.
- Promotes unity and total integration which fosters social change at a mass scale.
- Helps maintain human and social relation by keeping the structural equation and balance.
- Spreads the message by word of mouth, print and electronic media.
- Prepares enlightened public opinion by removing the resisting factors and obstacles to social change.
- Increases depth and variety of knowledge to appreciate change.
- Inculcates spirit of reform and social welfare to conceptualize and promote change.

Social Factors Determining Educational Policy

Generally education leads to social change but at times social changes also determine the educational policy, theory and practice. This indicates the close and integral relationship between education and social change. Some of the instances wherein social change determines education are as under:

- **Educational changes because of social forces:** Social aspirations, social values and social dynamism are some of the social powers. When these forces change, change occurs in the educational process also.
- **Educational changes because of social needs:** Society has various needs which affect the process of education for the purpose of their own satisfaction. It means that educational changes occur because of social needs and aspirations. Compulsory, free and universal education, diversification of secondary and higher education, adult education, agricultural, industrial, vocational, professional and scientific education are the various forms and varieties of education which have been brought about by the needs of modern Indian society.
- **Educational changes because of cultural changes:** Many changes in education occur because of cultural changes. It may be noted that first the material aspects of culture changes and then the non-material aspect of culture gradually changes. Thus, when cultural changes occur, changes also occur in education.

Role of Education in the Emerging Indian Society

In India, a state of social equilibrium existed for thousands of years before the English conquered the country. This equilibrium was the result of the scientific organization of education. The social feelings have influenced education and education has kept the aim of social progress always in view.

Observance of dharma was the aim of social life and education. Dharma according to Indians is that which holds society together and it denotes justice, duty, right, moral obligations and several virtues. It stands for the individual's rights, duties and obligations towards oneself, one's kith and kin, towards the society at large. Thus observance of dharma aimed at physical well being, emotional integration and refinement, intellectual stability and enlightenment, social and cultural coherence and harmony, and the true knowledge of dharma helped the people to be socialized. The social teachings of the great seers and sages of India united the country.

With the coming of British rule, the positive aspects of the country were altogether disregarded. To the people of India, such an educational system was bestowed, which had its roots in western social life. This obstructed the progress of socialization of the people through education.

With the dawn of independence, several attempts have been made to enhance the society with the help of education. Now the effect of sociology on Indian education is rapidly growing. Therefore, it is very necessary on the part of the people to be conversant with educational sociology. The study of educational sociology helps the students to understand the geographical unity, ethnic unity, fellowship of faiths, social institutions, and Indian culture based on the principles of socialization of the people. It helps the students of the emerging Indian society to know about the vast storehouse of sociological material that awaits careful study, analysis and orderly presentation. Beginning with the Vedic seers and sages, with Manu Varvaswata and Gautama Buddha, and ending with Rabindranath Tagore, Sri Aurobindo, D. Annie Besant, Dr. Bhagawan Das, Swami Dayanand Saraswati, Mahatma Gandhi and Acharya Vinohbha Bhave, India has given birth to seers, sages, saints, scientists, statesmen, social reformers and others, who preserved the Indian social tradition, while India's cultural and social life was shaken to its very foundation by the unsettling effects of contacts with other countries and by other agencies of social change. Our country's need today is to equip our students with the sociologist's concept of equality, secular attitude, broadmindedness and cultural unity of the country.

Education as a Centre of Community Life

A group of people living together by common interests and purpose may be called a community. But in actual practice, we do not have such a community. Generally, people living together in a community have conflicting interests in their process of living. The interests of the 'haves' have always dominated over the interests of the 'havenots'. In spite of these differences, there are certain grounds common among all the members and groups of any given community. These grounds are: beliefs, customs, traditions, attitudes etc. because of these common interests, perhaps we call it a community. Even then different groups in a community may differ from each other on the basis of their basic interest. Therefore, it is very difficult on the part of education to look to the interests of several groups of a community equally. The group that becomes powerful, influences the community as a whole and dominates over the policies and practices of the education system. In such a situation, it is very difficult to practice the principle like 'equality of educational opportunity.' During the British Raj, people of India could not realize the importance of education. Therefore, education was considered as an institution like other government offices. In the words of K.G. Saiyidain, 'For all practical purposes, it (education) is just as much an official concern, a government institution, as the law court or the railway or the prison.'

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The various section of the community dominated education to safeguard their own interests. But now the question arises as to how far education enters the community. This is a crucial problem for everybody who deals with education. Our problem is to check the influence of different groups on education and use education as an instrument for general improvement of the community as a whole.

To achieve the above goal, it is essential that education and the experience of the child in the society should be integrated. As a result of which education can become a social process and a dynamic part of the social life of the entire community. Such unification or integration between the two fields of education will be possible only when education can participate in the life of the community and take active part to solve the problems confronted by the community. When education understands the needs, interests and problems of the community as a whole, it can serve the community in the true sense of the term. In this respect, K.G. Saiyidain opines, 'A peoples education must obviously be based on the peoples' needs and problems. Its curriculum should be an epitome of their life. Its methods of work must approximate to theirs. It should reflect all that is significant and characteristic in the life of the community in its natural setting'.

Education is the only means to lead the individuals towards all-round development and progress. Therefore, each community maintains education in order to fulfill its economic, political, cultural and social needs and education on the other hand maintains the community through its many different activities and diverse programmes.

Relation of education and community is a two-way traffic. The community conveys its problems to education for solution and guidance and the knowledge is fed back to the community. The progress of the community depends upon the effective feedback process. A community cannot progress, if it does not get feedback from education as guidance and solutions. Thus education and community depend upon each other for their progress. Education can solve the economic problems of the community.

Some are of the opinion that education can meet the needs of the people, if it can orient the students to the existing industrial and agricultural conditions and prepare them for specific jobs. But some people criticize this opinion and argue that in a democratic country, it is not at all desirable to introduce early specialization. It may be introduced at an advanced stage of development. Regarding such vocational orientation in education, some other experts advocate that introduction of socially useful productive work make learning more meaningful and effective. It helps the students realize the importance of dignity of labour and develops their personality. Thus education can solve the economic problems of the community.

Education can solve social and cultural problems of the community

Education can solve social and cultural problems confronted by the community in many different ways. For example, the social problems like untouchability, health and hygiene should be discussed by the students, teachers and the members of the community and find out desirable solutions. Educational activities like literary classes, discussions, and plays can be organized, to solve the social and cultural problems of the community. Thus, education can influence the community life and become a community education in the true sense of the term.

Check Your Progress

4. Why is it important that education and society should be closely associated?
5. State any two ways how education affects social change.

8.4 SOCIAL FACTORS IN EDUCATION

Sociocultural approaches to the process of learning are increasingly being applied by educationalists. Two principal agencies, family and school, powerfully shape children's experiences. The influence of these two agencies is constrained by the wider social and cultural systems into which they are embedded.

Here we will study some of the social factors impacting education.

1. Schools as agents of socialization

The school, as an agency of socialization developed at the stage of social development when division of labour became pronounced and the need to create some special institution to educate people for several categories of social activities began to be felt. In ancient India, we had schools like *guru ashram*, *gurukula*, the *vihara*, the *sangha*, the *patasala* and the *vidhyapitha*, which played a prominent role in the process of socialization and transmission of the rich cultural heritage of the country. In the medieval period, we had *maktabs* (schools) and *madarsas* (colleges). The modern school system developed with the coming of the British to India.

In modern industrial society the school system has emerged as one of the most potent agencies of socialization. Schools offer two contexts for the students. The first is the formal context of the classroom, wherein the context of socialization is decided by the prescribed curriculum. The second context is informal and can be perceived in the interpersonal relationship of students with teachers and those among the students.

Talcott Parsons (1959) in his essay the 'School Class as a Social System' argues that the school as a social system performs four important functions simultaneously:

- Emancipation of the child from the family.
- Internalization of social values and norms, at a higher level than as available in the family.
- Differentiation of the school class in term of actual achievement.
- The selection and allocation of human resources into the adult role system.

By going through this process the child acquires the values of industrial society like achievement orientation, discipline, liberalism and rationality.

Origin of the term school

It is not known from where the term school originated. Probably it originated from the Greek word *skole* which means leisure. If we open the pages of history we will find that in the ancient civilizations of India, Greece, China and Egypt, material prosperity increased to a great extent as a result of which leisure became available at least to the people belonging to the upper classes in the society. To spend their leisure hours profitably, they developed a special institution to educate themselves. The institution came to be known as school. Thus, the school system developed out of surplus economy. Due to further development of material resources, the school became the most important agency of formal education in modern times. It has become the predominant mode of transmitting culture everywhere in the world. In modern times, the school has been used as an important agency of formal education to preserve and strengthen the cultural heritage of a society to control ideals, values, beliefs, customs and traditions.

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Functions of a school

The school, as an active and formal agency of socialization performs the following functions:

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(a) Conservation and perpetuation of culture

The most important function of the school is that it should conserve the existing social culture, which was won at a great cost of time and suffering. The continuity of social life can be maintained by the school by transmitting the customs, traditions, values and experiences of the society from generation to generation. Thus, the school can teach the minimum general culture and civilization.

(b) Promotion of civilization

Conservation and transmission of culture from one generation to another is not the only function of the school. The school imparts adequate training for the enrichment and modification of culture. As a result of which a better and happier society can be established. Thus, the school transmits cultural heritage and recognizes and deconstructs human experience for the promotion of culture and civilization.

(c) Deployment of cultural pluralism

School is an institution, where children belonging to different religions, castes, creeds and social hierarchy study together and mix freely with each other in a friendly atmosphere. They also develop sympathy, cooperation, tolerance and respect for the views of others in a natural way. Thus, the school acts as an important agency to develop cultural pluralism among the students.

(d) All-round development of the individual

The school is meant for the all round development of the personality of the child, his physical, intellectual, social, moral, spiritual, and aesthetic development. The school develops social qualities of the child with the help of curricular and co-curricular activities like games, sports, social service programmes, and craft work.

(e) School develops spirituality

Instruction in the school develops spiritual feeling in the individuals. The atmosphere of an average home may not be suitable for developing spiritual feeling in the individual. But schools cannot afford to ignore the spiritual development of the students. By creating a suitable atmosphere, it can develop spiritual feelings.

(f) School takes the responsibility of social reconstruction

Society reviews and develops itself through the active cooperation of schools. All social problems and needs of society are flashed in one way or the other in school which provides the desired solution for all these problems. Proper education enables the students to criticize evils. As a result of which certain modifications take place in the social order.

(g) Development of the quality of leadership

Schools train the leaders of tomorrow. They train the students to understand their role in society and State and to make proper use of their rights and duties. In course of their learning, the students get an opportunity to think critically in order to become conscious citizens of the democratic state. By accepting leadership, in different co-curricular activities, they get training in leadership, which helps them to become future leaders of the country.

(h) Promotion of social efficiency

The most important function of the modern school is to provide social efficiency. Students should get the training for democratic living which emphasizes on social efficiency.

Thus, the school has become a significant and basic institution of the society. Therefore, the state should come forward to support the school in a big way.

Functions of a modern school

In the past, functions of the school were confined to reading, writing and arithmetic and to a few other academic subjects only. With the dawn of modern age all these have been put in the reverse gear. The importance of universal education has been accepted by all. The needs and the nature of modern production also makes it obligatory for the state to make education free and compulsory for all.

(a) School as a gateway to lucrative jobs

Modern schools are the place where formal training is provided in certain technical skills like reading, writing, drawing, etc. Certain prescribed subjects like history, geography, political science, psychology, education, economics, sociology and science are also taught to provide the students with lucrative jobs and professions of prestige. Schools have become the instruments for killing the spirit of joy, initiative and love of work in children in order to provide them with a white collar job in their unforeseen future. Thus, schools now function as an agency of formal education in order to provide lucrative jobs and professions of prestige to the students.

(b) Introduction of productive work

Since the modern technological society is dominated by the machine, productive work has been introduced as an integral part of schooling. Students are allowed to find out the types of productive activities suited to their age groups and to various levels of academic growth. An authority like Paul Nash feels that in our technological society, work has lost its real meaning. It fails to provide satisfaction and happiness. It does not work as a means of self-realization. 'In order to restore its real meaning, work should again be made a reflective activity. That is, work should make one conscious of relationships between workers and worked, between worker and management, between a man's work and society's need, between the intention and the execution, between the present activity, past benefits, and further promise.' Hence the function of modern school should be 'to make work a reflective activity through the development of purpose and commitment in the student and at the same time, help to lose playfully in the work-task of the movement.'

Functions of the school as a substitute to the family

The modern school takes over certain functions that are usually performed by the family. For example, in the curriculum of modern schools subjects like home science, domestic art, and health education have been introduced. There is also provision to help the children to profitably use the leisure hours during the school time and also recreational facilities after school hours. In general, schools have also undergone changes. It is no more based on authority. Therefore, the responsibility of the school at present is to develop self-discipline. Through self-discipline, children can enjoy freedom.

(a) School should satisfy the child's needs

Opportunities should be provided in school to enable the child to satisfy his need, and interests. Here the school should be careful to see that the child does not interfere with the activities of others while satisfying his needs and interests. This, will be possible, if the school can provide facilities for self-expression and free activity. Thus, the school can discover the needs and interests of the child and guide it properly for satisfying them.

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(b) School should create a sense of security in the child

For the normal growth of the child a sense of security is very much needed. Therefore, the school should provide opportunity for 'feeling of being loved and cherished, a feeling of belonging, a feeling of being at home in a situation, a feeling of courage and self confidence.' If the school becomes home-like, then the child can develop a sense of security. Besides this, the system of 'pass' and 'fail' in the examination, should be modified to develop a sense of security in the child.

(c) School should develop a sense of cooperation

To get rid of the individualistic tendencies, the school should organize such a programme which will enable the children to think and work together in order to achieve a common objective. They should learn how to adjust to the social environment and also to each other in the process of living.

(d) School as a society in miniature

To make the society worth living, the school and the society should complement each other. They should depend on each other for their growth and development. If we neglect this contact, education would remain ineffective and artificial and cannot be used as an instrument of social progress. The school, therefore, is a society in miniature, where students and teachers function together, bound by a code of conduct that directs their behaviour. Organizations of activities like prize distribution ceremonies, athletic events, school assemblies, and clubs are the integral part of the school culture. These are some important features of social life. To supervise the rights and duties of the members of the schools there are some authorities also. The relationships between the administrators and teachers, teachers and students and teachers determine the efficiency of the school system. Thus, school is a social organization.

The school, in order to function as a society in miniature should organize activities like morning assembly, ceremonies and functions like prize distribution ceremony, games and sports, debates, and seminars. To cultivate community feeling, teaching of subjects like history, music, art and literature should be recognized. Student's self-government should be organized to provide training for leadership and community living. Thus, we can relate the school to life and society.

2. Home as an agent of socialization

The school cannot perform all the functions alone which have been entrusted to it. Therefore, assistance of the family is essential. The child spends the major part of its day in the family. As a result of this, the influence of the family in the development of habits, attitudes and behaviour, is much more. Hence, the mutual cooperation between the home and the school is very important.

The home as an informal agency of social education is the oldest institution. From time immemorial, the parents have been the chief teachers. It is at home that the child learns to walk and talk, to distinguish the simplest properties of the things that he sees and uses, to imbibe certain moral values, to differentiate between right and wrong, good and evil and to experience some of the deepest of human affections. When he becomes old, he does not stop his educational function. As a father or mother, he or she gives the best social education to the children. Thus, the home works as an abiding social educational agency; throughout life.

Social function of home

The home is the primary group, where 'face to face' relationships are made. This is very useful in providing education to children because in such situations children learn quite a lot. As an agency of education, the family should perform the following functions:

(a) Provisions for physical development

The first function of the family is to develop the child physically. Parents and the elder members of the family should be careful about the physical development of the children. To achieve this end, useful physical exercise and other activities should be provided to the children. They should also be provided with wholesome food containing all the ingredients of a balanced diet.

(b) Development of mental ability

The second important function of home is the development of the mental ability of the child. If home can provide a suitable atmosphere, children will be able to learn a lot informally. They can develop their mental powers like thinking, reasoning, feeling, discrimination, judgment, and memory parents should also create a suitable atmosphere for the same.

(c) Emotional development

The real education of the child begins not intellectually but emotionally. Good fellow feeling and amity among the members of the family affect the emotional make up of the child. As a result of which, it can develop positive emotions like sympathy, tolerance, love, and justice. The home also gives a sense of security to the child which enables it to receive fruitful education.

(d) Home as miniature society

The home is a society in miniature. Here the child learns all socially desirable values like companionship, love, security, inter-personal relationship, tolerance, and cooperation. Thus, it serves as the first and the most effective social system for the child.

(e) Home provides vocational education

The first lesson for future vocation of the child begins at home. Children, who are engaged in the family vocation become apprentices and in future may adopt the same training as a profession.

(f) Home imparts religious instructions

Under the unbearable stresses and strains of modern society, religious education is the only source which can provide peace and happiness to an individual. It is, therefore, desirable that the home should impart religious education to the child. As a result of which the child can develop qualities like charity, kindness, service to others, devotion to duty, goodness, etc.

(g) Transmission of culture

Apart from the broad umbrella of society, a family may belong to a sub-culture group which is different from the national culture. In such cases, the home hands out its specific and peculiar culture to the child. Different social classes have conflicting expectations from their members. Their ways of training also differs a good deal. The home transmits its individual culture and also the culture of its society to the child.

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(h) Home provides a learning situation

The home is the first school of the child, where he experiences a learning situation. He spends his infancy and pre-school stage almost entirely under the care and supervision of elders in the family. During this period, he is immature and highly impressionable. As such, he is easily influenced and moulded by the home. He is not only dependent for his physical needs on the elder members of the family, but also for his intellectual and social needs. As yet, he has neither any experience of his own nor any independent standard to judge things for himself. It is, therefore, the most malleable period of his life. Again, the child in his early years of life is highly charged with emotions. Emotions in the family greatly affect the learning process. Therefore, it is the responsibility of the home to provide a real learning situation to the child.

(i) There should be high cooperation between the home and school

The home should be ready to cooperate with the school. Parents should participate on the occasions like parent's day, school-exhibition, educational conferences, parent-teacher association meetings, etc. Besides this, the home should also be ready to share with the school the responsibility of developing the personality of the child.

(j) Training for citizenship

In a democratic State, the home provides a lot of training for citizenship. Through their participation in the household activities, they develop a good background for citizenship.

(k) Family should enable children to develop healthy attitude towards sex

One of the most powerful drives for men and women is sex. The index of a well-adjusted life is proper sex adjustment. In the present-day society, boys and girls tend to learn about sex through their friends. It often proves to be very harmful. Therefore, the family should take the lead to provide sex education to the child, so that he/she is able to develop a healthy attitude towards sex.

3. Peer group as socializing agent

Children like to play and move about in groups of their peers. This group life is very important for them and has a considerable influence on the development of their self-concepts. Being in a group gives them confidence and a sense of security. Particularly those who are popular, learn to think positively of themselves. In playing together children learn to cooperate. They learn to adjust their needs and desires to the behaviour of peers. In a very real sense, the child begins to develop a sense of self as distinct from the family. As the child develops a social self, he/she also learns to participate in the cultural norms and practices of childhood. He or she learns many things from slightly older members of the child peer group. For example, the specific rules of many childhood street games are learned, not from adults who still might remember them, but from older children. The same can be said for many rhymes, myths, tales, etc. Thus, peer influences begin before school intrudes and continues with varying degrees of importance for the rest of life. The norms, values and expectation of the peer groups of late childhood and adolescence tend to compete or even conflict with those of the family. Behaviours that are deemed proper within the family are at times incompatible with those expected by the peer group of adolescents like shops lifting or experimenting with drugs.

4. Mass media as socializing agent

In modern society, the means of mass communication such as television, radio, cinema, newspaper, books and audio-video cassettes have become an integral part of life. They

play a very important role in the socialization process of their viewers, readers and listeners. These mass media, especially the television and radio, simultaneously convey the same message to a nation-wide audience. Therefore, its impact on the process of socialization assumes greater significance. The most important thing about mass media is the message that is conveyed or images that are projected. For example, in the context of gender and socialization, one can examine the image of a female portrayed by the mass media or in the context of the rural population one can examine the relevance of the programmes for the villagers, which is made for the consumption of urban middle class. Another important aspect of mass media, especially television and radio, is that they generally express official values or message.

Television has some effect on another agency of socialization, i.e., home because it is generally viewed at home together with parents and siblings. It can propagate values in contradiction to those championed by a particular family or community.

Parents respond to this in several ways such as strict control of viewing and not allowing the watching of certain programmes. However, the child's peers in the neighbourhood or in the school influence him by discussing specific serials or programmes. Though there is no rigorous scientific study available on how much the average child learns from television, its impact is considered important. Bringing the whole world into the home for several hours every day, has created a childhood environment of sight and sounds never before experienced in the history of mankind.

Important Functions of Media

Of the different agencies of education, media in today's context perhaps plays the most vital role in socialization, acculturation or information dissemination. The media have found their rightful place in formal, information and non-formal education of children and adults. For development of worthwhile knowledge, skills, and attitudes in people of all ages, the media seems to possess great potential. In the last quarter of the 20th century, there was a rapid advancement in information technology with the help of which a tremendous amount of knowledge can be gathered, processed and disseminated in a most desired and effective manner. Mass communication systems opened up new directions to the horizon of the human world; they brought a revolution in man's behaviour to gaining of knowledge. Cameras mounted on space shuttles give us close-up televised photographs of the moon and other inter-galactic bodies. Television programmes are being transmitted from one side of the world to another. In India, SITE (Satellite Information Television Experiment) has been very successful by which information of weather and other types of information from all over the globe is readily available. Similarly, educational broadcasting computer network, e-mail, technology, computer discs, etc., have almost revolutionized man's approach to gaining and processing of knowledge. ETV (Educational Television) has become a persuasive and effective means of both formal and non-formal education.

The rapid progress of information technology may offer new prospects for development by opening up a large number of isolated regions and enabling people to communicate with the whole world in the vital field of specific research. It will help easy access to an international database and permit the establishment of virtual laboratories that would enable researchers from developing countries to work in their own countries and thus reduce the brain drain.

For a learning society like, India which has a huge population of one billion, the media systems based on modern technology constitutes a very potent tool for education

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and development. It has varied and numerous applications bearing on almost all aspects of individual and social life. In one sense, all these uses of information technology basically have their impact in educating people, giving them knowledge, skills, improving understanding and changing their attitudes. The media in today's world performs specific educational functions in both formal and non-formal systems. In education, media can be and is being used both at individual and mass levels of learning. Use of information and communication technologies especially in non-formal education (Distance Learning Mode) is becoming one of the most important delivery systems of learning society. Its use for distance education appears to be an avenue of promise for every country in the world. In India, IGNOU and CIET (Central Institute of Educational Technology) are launching distance education programmes throughout the country. In general, distance education employs a variety of delivery systems such as correspondence courses, radio, television, audio-visual materials, telephone lessons and teleconferencing. The new technologies will have an important role to play in adult education in tune with learning throughout life. In the formal school situations though nothing can entirely replace the face-to-face learning, yet we can use the media to our best advantage. The Delors Commission also observes that the new technology has created a host of new tools for use in the classroom as under:

- Computers and Internet
- Cable and satellite TV education
- Multimedia equipment
- Inter-active information exchange system including e-mail and on-line access to libraries and public data base.

Using these and other tools, both students and teachers are equipped to become researchers. Teachers can coach their students to evaluate and to use effectively the information they have gathered for themselves. In this way, a new partnership can develop in the classroom. However, it should be remembered that these tools should be used in conjunction with conventional modes of education and not to be considered as a self-sufficient substitute for them. If used with the conventional mode, it can enrich the formal system by filling instructional gaps, updating knowledge, and giving new learning experiences.

The use of computers and multimedia systems make it possible to design individual learning paths along with which each pupil can move at his/her own pace. The compact disc (CD) technology has a special role to play, for it can handle large amount of information complete with sound pictures and text. Interactive media allows pupils to ask questions and look up information themselves. It is observed that pupils who are under-achievers or experience difficulties in conventional mode of education reveal their talents better and show more motivation and curiosity in an informal mode.

In the end it is important to stress that the aim of the development of these technologies is not to replace the textbook and the teacher. In a child's education they have their own role to play. Textbooks, although they no longer are the only instrument of teaching and learning, nevertheless, retain the central place therein. They remain the cheapest of media and easiest to handle, illustrating the teacher's lessons, allowing the pupils to revise lessons and to gain independence. Similarly, the development of these technologies does not diminish the role of teachers, it however offers them an opportunity that they must grab. It is true that in today's world teachers cannot be regarded as the

only repository of knowledge that they have to pass on to the younger generation. They become partners in a collective fund of knowledge. With the development of these technologies, there has definitely been a shift in the emphasis in the teacher's role. Their role now is not only that they have to teach pupils to learn but also of teaching how to seek, look up and appraise facts and information. The competency of the teacher is 'a new form of literacy for him.

8.4.1 Education as a Social Sub-System

Society generally consists of complicated network of social relationship by which every human being is interconnected with his fellow men. At the same time, every relationship among human beings is not social. In a social system, education as a sub-system fulfills part of the functions of the society viz. getting the young-ones ready for the adult roles that they have to play. Thus, maintaining society over time. Education works in close interrelationship with other sub-systems. i.e., family, economy or state.

A society has a certain set of components working towards the goal of managing funds for the welfare of the people in education. Policies of the state influence the functioning of the system of education in any country. Funds provided by the system of economy largely decide the structure and functioning the system of education.

Similarly, the family background of the students of a social school influences the education system. Education system is only system which provides the necessary human resources for the other sub-systems. In this manner we can say that education is a sub-system of society and that it works in close interrelation with other sub-systems of society.

The interrelated system of social roles and norms organized about the satisfaction of an important social need or function is called a social institute. Institutions may also be defined as established forms of procedure. One of the main aims of the society is to prepare within the children the essential conditions of its existence and perpetuation.

The older generation exercises certain influences on the younger generation which is not yet ready for social life, with the objective of promoting in children the set of physical, intellectual and moral behaviour expected by the society from them as a whole. Frankly speaking, each generation tries to pass on its social heritage and cultural tradition to the next generation. This process of transformation is called the transmission of culture.

Socialization is a process which starts from the early years of the child where he/she is within the family environment. It is before we start our schooling. Social values and norms are generated by this section of age. If we observe the behaviour of the family members and he reward goes to the education.

Education and the Community

Man forms a society, because he cannot do without it. When some persons come in contact with others, and for protecting their interests indulge in natural give and take, they form a society. A group of persons alone cannot be called a society. For a society it is necessary that its members feel a sense of unity and mutual relationship. When various persons of a community get interested in each other and consider themselves bound with some feelings, they bind themselves in a society.

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There is no limit to the dimension of a society. Within its size there may be only two persons or all the persons of the entire world. Within a big society there may be several small units and a certain person may be a member of several societies. In the world society there are several nations, within a nation there are several provinces, within a province there are many cities, in a district several villages, in cities several mohallas, associations, committees and many other social units.

A society has its own ideals. Every member considers his duty to safeguard them. The organization of a society is such that its members may look after the social interests along with protecting their own individual personalities. A person being a medical doctor, an engineer, a teacher or a musician can observe the social ideals in his particular field of activity the purpose of a society is quite comprehensive and permanent. It includes all the aspects of an individual's life.

Definition of a society

Society is defined in various ways and the various definitions may be quite appropriate in their particular contexts. In this unit by the term 'society' we shall understand a group of individuals of a particular geographical entity which shares some common experiences and follow a certain culture. For the interest of all concerned this community recognizes some institutions and some local unity. Some consciousness is always present in it. For the fulfillment of some social purpose this group works as a unit.

Responsibility of society for education of the child

There is a close relationship between society and individual. It is the individual who forms the society but he is always influenced by it. After becoming a member of the society the individual becomes so concerned with its ideals and traditions that if he happens to ignore any of them, he is censured and regarded as immoral. Only that person is regarded as educated who is very well rooted in the social ideals of society. Family, school and state are different types of social institutions and all these leave undeniable imprints on the development of the child. The child learns many things unconsciously according to his environment. So those responsible for the development of the child must try to organize the environment in such a manner that it does not adversely affect the child's development. It is our duty to make the child social. But the process of his socialization should be such that he experiences no difficulty in the same. In some social system the state shoulders the entire responsibility of the growth of the child. This situation is particularly true of a communistic state. In a democratic set-up everyone tries to fulfill his duties regarding the child. In a democracy the various units of the society arrange for education of the child in their own particular spheres. But these units are responsible to the State for education of the child. In other words, in a way, even in a democracy the state undertakes the responsibility of child's education, but at the same time the society also cannot free itself from the same.

Individual and society

The child is the future citizen of the society. Therefore, the welfare of the society rests on the proper education of the child. The society should shoulder this responsibility very sincerely. It should organize the environment in such a manner that the child can himself build up his personality in an ideal manner. In its attempt to make each individual social, sometime, the society crosses its limits. Then it is seen that many persons come under the pressure of some old social traditions and customs. As a result, their growth is

blocked. If under this situation someone crosses the social sanctions, he is given some punishment. In our country many people are afraid of social boycott. So they do not dare to go against social sanctions. Adherence to social sanctions must not imply that one should not rise against social evils. If social evils are not eradicated the growth of society will be blocked. The social environment should remain so open that everyone feels free to reach his maximum development it is for the interest of the individual and society both that they maintain mutual co-operation and adjustment and each regards the development of the other as its own development. Thus the individual and society are interdependent.

Cooperation between school and society

The cooperation between the society and its various units is very necessary. If there is lack of cooperation between family and school and between society and school, no suitable environment for the child will be possible the problem of cooperation between the society and school is not so complex as between the school and family. Sometimes the gulf between the school and family becomes so wide that the child has to face two types of environments resulting into lack of harmony in his behavior. Similarly, there should be no gulf between the school and society. The school has to serve the interests of society. In other words, the school should represent the society. It is in this sense that John Dewey has remarked that the school is a society. In the activities of the school the shape of the society should be clearly seen.

School cannot be separated from society, because the school is a necessary organ for the development of society. The students and teachers are members of the society and through their personalities they bring to school various social problems. The parents also bring pressure on the school through their demand expectations. Even then there appears to be a gulf between the school and society, because the environment of the school has become artificial. Whatever is done in the school does not appear to be related with the demands of society. So after completing his education, an individual is facing unemployment and cannot stand on his own les. By bringing the school near the society, self-confidence and self-reliance may be created in the individual. Therefore the school must be related to the social demands, it has been suggested by some educationists that parents should be invited to participate in school functions and they should be made conversant with the various activities of the school. Sometimes the teachers should visit homes of students and should talk to parents about their children's difficulties. By these measures the parents will feel that the school is paying due respects to them and it is sincerely interested in the growth of their children. The experts in the field education have also stated that the teacher should take the responsibility of cultural development of the nearby society. For this the teachers should organize some appropriate activities in the society. Thus the school will be influencing the society in a healthy manner, and in a way it will become a centre of social life.

Some educational duties of the society

In the modern days of democracy, it is very necessary to bring the school near the society. But at the same time it becomes imperative in the society to perform certain educational duties. These duties are related with the all-round development of the individual's personality. Thus each social institution in same way or other will act as a centre of education. Then in the general life of the individual the process of education will ever be on.

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The society establishes the school in order to ensure the mental development of the child. Similarly, the society should be careful about the other sides of child development. It should open gymnasium, and provide playgrounds, parks, garden and hospitals. The society must see that adequate provisions are made for distribution pure milk and other food articles and necessities of life at reasonable rates to all. Such a provision is not to be for children alone but for all – adult, old, men and women irrespective of their vocations.

The society should make arrangements for vocational education of children. If this is done everyone will be able to earn his living and the problem of unemployment will be solved in due course.

The society should see that everyone is permitted to enjoy freedom of speech. Any idea or doctrine must not be imposed on anyone. Everyone should be made free to follow his own ideals of life as long as he does not interfere with the rights of others. For encouraging freedom of speech, reading rooms, libraries, radio and TV sets should be provided in order that people may become well informed about the virus national and international happenings. Suitable arrangement should also be made by society for adult education. In fact, to educate the huge illiterate masses is a sacred educational duty of the society in our country.

The society should also look after the moral development of its citizens. It is not morality alone that the permanence of society exists. So attempts should be made for the maintenance of discipline in society. Fostering of liberal attitude and spirit of co-operation, tolerance, dutifulness, politeness and patience are necessary for moral development of the society. Black-marketing and dishonesty on the part of some shopkeepers and businessmen prevail only when the society tolerates it. The state laws cannot eradicate these evils unless the society also comes forward and takes suitable measures to stop these vicious practices. So it is the responsibility of society to maintain a moral environment. If the society is able to perform these duties the individual will automatically get education for developing good character.

The society must keep its ideals very high in order that it may not fall. High ideals of society ensure honesty, dignity of labour, self-respect and self-reliance in its citizens.

It is the duty of society to promote aesthetic senses in children. This may be possible through education in fine arts, painting, vocal music and dancing. If an individual forms the habit of being aesthetic in all his activities, then he will not tolerate any filth in his home, village and society, thus a healthy environment will be maintained in society and all will be happy.

Regarding religion, the society has a special duty. It must see that every citizen feels free to practice his faith without interfering with others' beliefs the society must teach its citizens that all religions are equal and based on love, sympathy and compassion. There should be no strifes and dissensions in the name of religion.

Socialization of the Child

The sole purpose of education is to socialize the child. The family is the first school of the child for this purpose. Then come the neighbors and companions. A child adopts behaviours by imitating adults. So the elders and others who come in contact with the child must be very careful in their behaviour. When the child starts going to school, he faces a new world and revolutionary changes occur in his behaviour. He regards the teacher as his idea. So through socialization the child picks up the social ideals, traditions

and customs to be followed in order to win the approval of his elders. Needless to say society and its various units have to play a very important role in the socialization of the child.

Educational Scenario in the Indian Social Context

Education is an instrument for developing a society and for ensuring equity and social justice. In India, the education scenario at the time of Independence had structural flaws with inequities characterized by gender, social and regional imbalances. Even though the post-Independence period saw significant achievements in the field of education, the structural flaws continued and to a certain extent got accentuated.

The Indian Constitution guarantees the values based on the principles of equality, liberty and fraternity, and ensures the dignity of an individual irrespective of his caste, creed, political, economic or social status. Humayun Kabir has rightly said, 'as a democratic republic, India has abolished all vestiges of privileges and vested interest. Our constitution not only offers but guarantees equality of opportunity to all. Such equality can be realized only in an atmosphere of justice and fair play'.

Students, the future citizens of India, should be trained in a democratic setup, its values and ideals, so that they will have sense of justice, which is conducive for the development of national integration.

The fourfold idea of Justice, Liberty, Equality and Fraternity in the Indian Constitution has been incorporated for the elimination of social inequalities, economic disparities and political privileges. In the eyes of law, everyone has an equal status; justice is denied to no one. Everyone has liberty of thought, expression, and to practice his own faith and belief. The dignity of each individual is assured.

Another unique feature of modern Indian education is the tremendous advancement made in the education of women. Education of a girl child is considered very important in the changing times. India requires a large number of women teachers for primary and secondary schools. Hence, more training colleges should be opened for training of women teachers and more seats for women should be reserved in training colleges. Similarly, more seats should be reserved for women candidates in medical, engineering and other professional colleges. This will facilitate the growth of women in various sectors of life. If trained women workers—lady doctors, teachers and so on—are sent to work in rural areas, they should be given higher salaries and other facilities like residence and other essential amenities for obvious reasons. Safety and security of women is another feature that needs to be taken care of.

The overall demand for higher education, adult education, and professionally related courses, is increasing in India. The changing social demographics, the increased number of secondary school pass-outs, desire for continual learning, and the growth of the information technology are a few important reasons for this change. While demand in education sector is growing, the ability of the traditional institutions needs to be enhanced to meet this requirement. The students, especially in higher education, need to be well equipped to succeed in the complex global environment, where the employers expect their employees to analyse and to find solutions to the problems from multiple perspectives. Universities are adopting various plans, policies and strategies to internationalize education in response to such emerging global demands.

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Cooperation between Society and School

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From the above discussion it is quite clear that for the healthy development of the child cooperation between the society and school is very necessary. The society must take keen interest in the activities of the school the school is fulfilling only some essential functions of the society. Therefore, the society and its various units must always be prepared to help the school whenever necessary. The parents must never doubt the sincerity of the school and they must never interfere in its activities. They should provide all that the school demands for the education of their wards.

It is not possible for any society to provide opportunities for the development of all. Hence, mutual co-operation between the society and various schools is very necessary. The schools of urban or rural areas should serve as social centres for education and recreation of adults. In the social centres local problems of industries and general occupations may be discussed for finding out acceptable solutions.

We should keep in mind the following points for establishing a close relationship between society and school:

1. The needs of the local people should be ascertained. As far as possible, the school should try to meet them.
2. Community resources should be found out. The teachers should try to find the numbers of workers engaged in the local agricultural fields, factories, shops, gardens and laboratories.
3. The services of the all available social institutions in the state should be utilized as far as possible.
4. The society should be the starting point in any aspect of the curriculum.
5. It will not be useful to teach everything. The children should be acquainted with only some local experiences. Then alone they will learn something useful.
6. The students should be given all facilities to form their own programmes.
7. Each one should be given the knowledge of reading, writing and arithmetic.
8. It is just possible that everything cannot be taught through the school programme. So, the students should be given a list of literature in order that they learn something on their own.
9. The curriculum should be so flexible that changes may be introduced in it according to the needs of various individual.

Social groups and their implications, group dynamics

Aristotle, a Greek philosopher, once said that man is a social animal. He also said that all human beings, except hermits, lighthouse keepers, shepherds, prisoners in solitary confinement and a few others, live in groups. In everyday life, we observe that our life, to a large extent, is a group life. We do not and cannot stay alone for a long time. Group life is the basis of survival. We cannot fulfill even our basic needs alone, thus, we need to depend on other people for these needs. A number of sociologists also believe that after death sentence, ostracism is the crullest punishment for human beings.

The term 'group' is one of the most commonly used words. We use it to mean professional group, kin group, age group, religious group etc. In some cases, we use this term to mean human group as well. However, this usage lacks precision. Let us see how various authors and sociologists define 'social group':

- According to Marshal Jones, social group can be defined as 'two or more people between whom there is an established pattern of interaction'.
- R. M. Maclver and Charles Page describe social group as 'any collection of human beings who are brought into human relationships with one another'.
- Emory S. Bogardus defines social group as 'a number of persons, two or more, who have common objects of attention, who are stimulating to each other, who have common loyalty and participate in similar activities'.
- Harry M. Johnson is of the opinion that 'a social group is a system of social interaction'.
- Ogburn and Nimkoff say 'whenever two or more individuals come together and influence one another, they may be said to constitute a social group'.

Characteristics of social groups

Some of the characteristics of social groups are as follows:

- **Collection of individuals:** This is the primary condition of a social group. No social group can be formed in the absence of people.
- **Communication:** After the collection of individuals, communication is required for the formation of social groups. It is the foundation of group life. Members of a group need to communicate with one another in a meaningful manner.
- **Unity:** It ensures that members feel themselves a part of the group and are ready to help one another. Frequency and quality of interaction, and common interest bind a group together and bring a feeling of solidarity among them.
- **Similar objectives:** There are a various kinds of groups in a society such as educational groups, political groups and religion group. The members of a group usually have the same objectives. For instance, the objective of an educational group is to acquire education. Similar objective makes them identify themselves with one another.
- **Rules and regulations:** Every group has certain rules and regulations or norms. These rules may be in the form of traditions, rituals, customs or laws. All the members are expected to follow these rules. When members go against the rules, they are punished by the group.
- **Size:** There is no parameter regarding the size of a group. It can be small and or big depending on the nature of work. However, it needs to have a minimum of two members.
- **Subject to changes:** Change is inevitable with a passage of time. The functioning, ideology and size of a group keep changing. These changes may be slow or fast and may occur due to internal or external factors. With time, some groups may even cease to exist.

Importance of Social Groups

Human beings live in groups throughout their life. Let us understand the importance of social groups:

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- **Survival:** Social groups have become so important for human beings that they cannot imagine their life without these groups. These groups provide us means of survival such as food, clothing and shelter. In the modern society, people depend on these groups to acquire things of comfort and luxury as well.
- **Self-development:** In the previous section, we discussed that human beings develop human qualities only when they are exposed to human environment. Therefore, these groups inculcate human qualities in people. In addition to this, they also assist in the development of people's personality as they provide a platform to exhibit talents and abilities. Human beings develop intellectual quotient and emotional quotient only in the presence of groups.
- **Development of social skills:** In addition to self-development, human beings also develop social skills in these groups. They learn the basics of socialization like considering other people's feelings and sentiments while making a comment. They learn that they cannot make comments that hurt the sentiments of a community or a religion.
- **Belongingness:** Social groups give human beings the feeling of belongingness. Without groups, they may feel lonely and disconnected. These groups also provide emotional and moral support to people when they are going through a tough phase of their life.
- **Professional growth:** Members of our social groups are aware of professional skills. Most of the times, these members refer our names to various people and suggest us various ways to grow professionally. Therefore, they, directly or indirectly, help us in our professional growth as well.

Classification of social groups

Social groups have been classified in a number of ways depending on their nature, and permanence. Let us study these classifications in detail:

- **'In-groups' and 'out-groups':** William Graham Sumner explains the difference between 'in-groups' and 'out-groups'. When a human being is able to identify himself with a particular group for a particular reason, he considers that group as 'in-group'. All groups, except 'in-groups' become 'out-groups' for him. For instance, a Hindu might consider all Hindus as members of his 'in-group' and people of all other religions as members of 'out-group'.
- **Involuntary and voluntary groups and institutional and non-institutional groups:** These three classifications of social groups have been given by Charles A. Ellwood in his book titled *Psychology of Human Society*. He explains these classifications as follows:
 - Involuntary groups: Groups that are based on a person's blood relationship or kinship are known as involuntary groups. Some of the examples of this kind of group are family, state, caste and community.
 - Voluntary groups: Groups that are chosen by a person himself are known as voluntary groups. Youth associations and cultural associations are examples of this kind of group.

- Institutional groups: Institutional groups, according to Ellwood, include church, state and schools. He states that these groups are permanent in nature.
- Non-institutional groups: Some groups are temporary in nature such as mobs, audience and crowds. This kind of groups are known as non-institutional groups.
- **Horizontal and vertical groups:** P.A. Sorokin has classified social groups into two categories: horizontal groups and vertical groups. The basis of this division is the significance of hierarchy. In the former type of group, hierarchy is either not given importance or it does not exist such as peer group and nations. In the latter group, members of a society give importance to hierarchy such as economic class and bureaucracy.
- **Territorial and non-territorial groups:** Robert E. Park and Ernest W. Burgess classify groups into two categories: territorial groups and non-territorial groups. Groups that have a definite territory are known as territorial groups such as state, nation and village. Groups that do not have a fixed territory are known as non-territorial groups such as classes and castes.
- **Crowds, groups and abstract collectivities:** According to Leopold Von Wiese and Howard Becker, human groups can be broadly classified into crowds, groups and collectivities. They believe that crowds are transitory whereas groups remain in existence for a relatively longer period of time. Abstract collectivities such as church and state are permanent in nature.
- **Primary and secondary groups:** C.H. Cooley says, 'By primary group I mean those characterized by intimate, face-to-face, association and co-operation. They are primary in several senses but chiefly in that they are fundamental in forming the social nature and ideals of the individual'. Family is one of the examples of primary groups. Cooley does not even mention the term 'secondary groups'. Other sociologists later explained this term as 'residual' category.
- **Genetic and congregate groups:** F.Q. Giddings has classified groups into two categories: genetic groups and congregate groups. By genetic groups, he means those groups in which a person is born such as family, racial group and ethnic group. Congregate groups, on the other hand, are those groups that are chosen by a person voluntarily such as trade unions and political parties.
- **Organized and unorganized groups:** Social groups are classified on the basis of degree of organization. Groups with a well-organized and defined set-up are known as organized groups and others are known as unorganized groups. School, church and business corporation are some of the examples of organized groups. On the other hand, crowd and public come under the category of unorganized groups.

8.5 SOCIALIZATION

Socialization is a term which one often comes across in the writings on sociology of education. What exactly does it mean? Socialization is a process, whereby people learn the attitudes, values and actions appropriate to individuals as members of a particular social group. Eskimo children, for example, learn to enjoy eating the raw intestines of birds and fish, while Chinese children learn to relish the stomach tissue of pigs. Just

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Check Your Progress

6. What are two functions of the school as an agent of education?
7. What are two educational functions of home?

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reading about these things may make us a little uncomfortable because unlike these people, we have not been educated or socialized to appreciate such food. Again, girls in India are socialized to walk, eat, talk and behave in a specific manner. They are encouraged to be quiet, docile, gentle and submissive. Boys on the other hand, are rewarded for their independent and assertive behaviour. So, socialization is all about being in tune with what society expects from us depending on our age, gender, and social background. Socialization occurs through human interaction. We learn a great deal from our family members, best friends, teachers and from all those for whom we nurture affection and respect. We also learn, though to a limited extent, from the people on the street, characters, portrayals, and depictions of characters in films and magazines and other sources. By interacting with people, as well as through our own observations, we learn how to conduct ourselves 'properly' and what reaction to expect if we challenge society's norms and values. Socialization impacts the overall cultural practices of a society, and also influences the image that we develop of ourselves. In other words, socialization refers to the process whereby the 'biological child' acquires a specific 'cultural identity', and learns to respond to such an identity. The basic agencies of socialization in contemporary societies are the family, peer group and the school. It is through these agencies and in particular through their relationship with each other that the various orderings of society are made manifest.

At the time of birth, the human infant is just a biological organism with only animal needs and impulses. He knows nothing about what we call society or social behaviour. As it grows, under the careful guidance of mother it learns to control bowel movement and regulate hunger. The human child has an innate capacity to learn and to communicate. Therefore, the child gradually earns the group-defined ways of behaviour. It is human company initially in the form of a family and later other social institutions like the community, peer group and school which educate the human child to be a responsible and useful member of society. The process of learning to internalize the values and norms into its self or the mode of learning to live in society is called the process of socialization. To internalize is to imbibe so deeply that it becomes a part of the individual's behaviour and personality. Therefore, socialization is basically the learning of socially desired values, norms and roles by the members of a particular group or society. It may be defined more comprehensively as a life-long process of inculcation whereby an individual learns the principles, values and symbols of the social system in which he participates and the expression of those values and norms in the roles he enacts. The above discussion leads us to infer some important characteristics of socialization:

- It is a lifelong process.
- It helps in the inculcation of principles, values and symbols of a social system.
- It enables a person to enact certain roles.
- The roles that one enacts are in accordance with what he has learnt from the process.
- The roles a person enacts are the expressions of his social nature.
- The development of the social nature enables the person to participate in social life.
- The nature of what one communicates in society is determined by the influence of one's interaction with the society.
- Most human behaviour is adopted not instinctive. The capacity of the child to learn and to internalize is called the plasticity of human nature.

Role of Education in the Process of Socialization

At the time of birth, the child is totally unaware of his social obligations. He is self-centred. He does not care about the society or is least concerned about its welfare. It is only the process of education that brings him out of his selfish cell and makes him popular with other individuals. He also tries to make his own contribution to society. Hence the social significance of education is studied by educational sociology.

Education, as John Dewey says, 'is the process of living through a continuous reconstruction of experiences. It is the development of all those capacities in the individual which will enable him to control his environment and fulfil his possibilities.' This function of education is primarily a function for socializing the individuals living in society. Each individual learns from his predecessors and gets himself socialized. He learns how to make society richer by retaining all that is good and by eliminating all that is bad. Thus, education provides an opportunity to the people to be socialized and to lead the life of a normal human being.

John Dewey, in his book *Democracy and Education* emphasizes the importance of socialization of the individual with the help of education. He considers that through the participation of the individual in social consciousness, socialization takes place. He develops this consciousness by the help of education, thus making the process of education a social process. School is considered a miniature society as it purifies the society by providing the right education to the children.

Two eminent educationists like Brookover and Gottlieb opine that education is synonymous with socialization. 'It includes any social behaviour that assists in the induction of the child into membership in the society or any behaviour by which the society perpetuates itself through the new generation'.

From the discussions made above we come to the conclusion that socialization is a broad spectrum of social learning, whereby the child learns everything that he or she must know to become accepted as a member of society. The major socializing agencies in the life of a child are the home, the school, the peer group, religious institutions, youth organizations, political and economic institutions, the mass media, and in some cases the work environments. Some of these agencies such as the school, and the peer group are formally created and organized.

8.5.1 Stages of Socialization

The socializing agent does not try to teach everything at once. He concentrates on one task or on a few tasks at a time. Moreover, the process of accomplishing any one of the aims of socialization is gradual. Social scientists have earmarked four different stages of socialization from infancy to adulthood. These are:

- (i) The oral stage
- (ii) The anal stage
- (iii) The oedipal stage
- (iv) Adolescence

At the first stage the infant develops fairly definite expectations about when his feeding time is, and he learns to convey his needs for attention. During this stage, the infant is not involved in the family as a whole. He is involved only in the subsystem consisting of himself and his mother.

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The anal stage of socialization covers the period between the first and third year of a child's life. Toilet training is the main focus of this stage. During this stage the child internalizes two roles: his/her own and that of his/her mother, now clearly separate. The child receives love and care and gives love in return.

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The third stage extends from about the fourth year to puberty. During this stage the child becomes a member of the family as a whole. The child identifies itself with the social role ascribed to him/her on the basis of his/her sex.

The fourth stage begins roughly at puberty. At this stage young boy or girl wants to be free from the control of parents. The 'crisis' of this period is precisely the strain produced by much greater demands for independence. By the time the individual attains maturity, a major part of socialization is over, although it continues for whole for the entire life of the individual.

8.5.2 Types of Socialization

All types of socialization may be classified into two broad groups, viz. primary and secondary. This division is based on the primary and secondary needs of individuals. The basic physical needs such as thirst and hunger are called primary needs while secondary needs are those which emerge to meet primary needs, e.g. the need for learning skills to earn a livelihood. The family satisfies the basic needs of human beings; therefore, it is called a primary institution whereas a school is a secondary social institution because it meets the derived needs of the children. The parents are primary socializing agents of the child whereas the school teachers are the secondary socializing agents. Inculcation of norms and values within the family is called primary socialization while the process of imbibing norms, values and behavioural patterns of school may be called secondary socialization. Primary socialization starts in infancy and childhood. This is considered the most important stage of socialization as the child learns the basic rules of conduct at this stage. Generally, secondary socialization starts at childhood and carries on till maturity. However, the process of socialization never stops in life. The school, peer groups and other institutions in which a person is placed in life play the role of socializing agents.

In the modern societies, where the social mobility of individuals and groups takes place more frequently, individual's loyalty to a particular social group weakens. He starts emulating the values, norms, behaviour patterns of another group in anticipation of being accepted as its member. This kind of socialization is called anticipatory socialization. It is based on the reference group theory. According to this theory the norms, values and the behaviour patterns of the individual are determined with reference to a particular group or groups. For example, individuals who have acquired wealth suddenly try to follow the values and life style of upper strata of society. They tend to change their dress, behaviour and even their language and custom. For example, they start demanding dowry and force their women folk to observe *parda* on other 'distancing' customs.

8.5.3 Theories of Socialization

Social scientists have tried to analyse the processes of socialization in different ways. In this part we shall discuss some of the major theories in regard to the processes of socialization.

1. Charles H. Cooley's theories

Charles H. Cooley in his celebrated work *Human Nature and Social Order* (1902) propounded his concept of the 'looking glass' and explained how the self of an individual

develops and socialization takes place. He emphasized the role of primary groups and social interaction, especially communication, in the formation of personality. Thus, the self develops within a context of social relationship. Self and others do not exist as mutually exclusive facts, therefore, self is social. Cooley's important concept of the reflected or 'looking-glass' self has three basic elements, which are involved in the development of self and formation of personality.

These are:

- The imagination of our appearance to the other person
- The imagination of his judgment of that appearance
- Some sort of self-feeling, such as pride or mortification

Cooley argues that social interaction or communication plays an important role in the development of individual's personality and his/her behaviour pattern. During interaction with people, the child becomes conscious of how others see his/her behaviour towards them. On the basis of their reactions, the child develops a feeling about himself/herself. If the behaviour is appreciated, it will be applauded or rewarded and if the behaviour is denounced by the people, the child will suffer from feelings of mortification. Regular condemnation of the child's behaviour may develop an insipid and introvert personality in him/her while continuous appreciation leads to the development of a confident and extrovert personality. Thus, the social self depends on the social interaction. Individual's values, ideas, attitudes and habits are shaped by those of the people around him. This is the base of his/her socialization.

The primary group, according to Cooley's plays a central role in socialization. Primary groups are recognized by their features of intimate, face-to face association, direct cooperation and conflict, a relatively free play of personality and of sentiment. Though primary groups are present in all social organizations, according to Cooley, the family, play group and neighbourhood play crucial role in the process of socialization. Cooley called these groups primary because they are the nursery of human nature, providing the individual with his earliest and most complete experience of social unity. This group experience gives rise to social ideals such as the spirit of service, kindness and adherence to social norms.

2. Mead's theory

Cooley's theory of socialization, as we saw earlier, is based on human imagination, whereas George Herbert Mead explains socialization in the light of resulting 'acts' of consciousness. Mead bases his theory with two basic assumptions: (i) the biological frailty of human organisms force their cooperation with each other in groups in order to survive, (ii) those actions within and among human organisms that facilitate their cooperation, ensure their survival. Mead further argues that the human being learns those behavioural patterns that provide gratification; and the most important type of gratification is adjustment to social context. Mind, self and other unique features of human being evolve out of efforts to adjust and consequently survive in the social environment. In his view, society could survive only from the capacities for mind and self among the individuals. Thus, the capacities for mind, self and society are intimately connected. Mead recognized that the unique feature of the human mind is its capacity to use symbols or language to designate objects in the environment. The focus of Mead's theory is on how this capacity first develops in infants. The mind arises out of a selective process in which an infant's initially wide ranges of random gestures are narrowed as some gestures which elicit favourable reaction from parents. Gradually,

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gestures begin to denote the same meaning to all the persons interacting with each other. Gestures that have such common meaning are termed by Mead as conventional gestures. These conventional gestures increase the capacity of organisms to adjust to one another and assume the perspective of those with whom they must cooperate for survival. By being able to put oneself in another place or to 'take the role of others' the probability of cooperative interaction acquires a new level of efficiency.

Thus, when an organism develops the capacity to understand conventional gestures, to employ gestures to take the role of others and to imaginatively rehearse alternative lines of action, then Mead believes, it has a 'mind'. He emphasizes the development of 'self' for the proper socialization of individuals. He points out that just as humans can designate symbolically other actors in the environment, so can they symbolically represent themselves as an object. The interpretation of gestures, then, cannot only facilitate human cooperation, but it can also serve as the basis for self assessment and evaluation. As organisms mature, the transitory 'self-images' become crystallized into a more or less stabilized 'self conception' of oneself as a certain type of object. With these self-conceptions, individual actions take on consistency, since they are now mediated through a coherent and stable set of attitudes, dispositions or meanings about oneself as a certain type of person.

According to Mead there are three stages in the development of self.

- (i) The initial stage of role taking in which self-images can be derived is termed 'play'.
- (ii) The child identifies with the role of what Mead calls 'particular others' such as father, mother, etc.
- (iii) Later by virtue of biological maturation and practice at role-taking, an organism becomes capable of taking the role of several others. Mead termed this stage 'game' because it shows the capacity to derive multiple self-images from and to cooperate with, e.g., a group of individuals engaged in some coordinated activity.

In this process 'I' converts into 'me'. So long as the child has not identified or understood the roles of others he/she is only 'I'. With his/her identification with other 'I' gets converted into 'me'. This conversion of 'I' into 'me' signifies the socialization of the child. The final stage in the development of self occurs when an individual can take the role of the 'generalized other' or 'community of attitudes' evident in a society. At this stage, individuals are seen as capable of assuming the overall perspective of a community, or general beliefs, values, and norms. Thus, it is this ever-increasing capacity to take roles with an ever-expanding body of others that marks the stages in the development of the self.

According to Mead, the individual and society are inseparable. Society represents the organized interactions among diverse individuals. Thus, the individuals create social environment. On the other hand only society makes an individual a human being. As we have already seen, the self of the individual develops from interaction with others in society and interaction is made possible through communication. The communication is based on symbols with shared meanings.

3. Freud's psychoanalytic theory

According to Sigmund Freud's theory of socialization the human personality is the product of the interplay of biological, psychological and social faculties of the individual. While

explaining the behaviour pattern and personality traits of individual, Freud formulated three basic principles. These are:

- (a) Every conscious action has a cause in the unconscious
- (b) That conscious is simply a puppet in the hands of unconscious
- (c) That whatever one becomes as an adult was determined to be so in his/her early childhood

Thus, according to Freud's principles a major part of human personality is formed in the childhood and during rest of the life it is elaborated and sharpened. In this sense Freud reiterates the role of primary socialization in the formation of personality. According to Sigmund Freud, human mind has three main regions:

- (a) Consciousness
- (b) Pre-consciousness
- (c) Unconsciousness

The conscious region of mind relates the individual with present events and activities in life. The preconscious region stores up memories, which easily enter the consciousness. Such a memory can readily be called to mind, for example, say the word school and you will recall an incident or a series of incidents from your school days. The unconscious region is the storehouse of all the repressed desires and bitter experiences which are unacceptable to the conscious mind. These repressed desires come to the level of consciousness either in a disguised form or in psychoanalysis.

The unconscious is the predominant content of the mind in relation to the amount, which is in the consciousness at any given time. The conscious is comparable to foam on the surface of the vast and deep sea of unconscious. It is much more powerful, ruthless, illogical and pleasure seeking than the consciousness. For a more comprehensive analysis of the human personality, in his later writings, Freud shifts his emphasis from the regions of the mind to the structure and function of personality. It is the interaction among 'id', 'ego' and 'superego' that gives a definite shape to the individual's personality. The structure of the mind is illustrated in Figure 8.1.

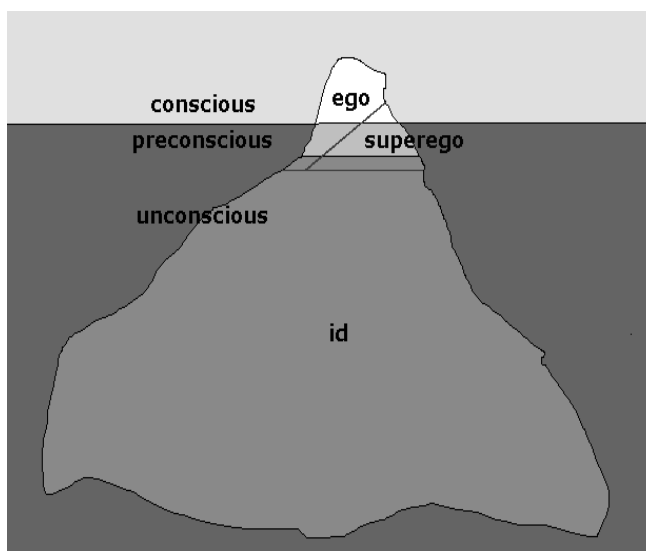


Fig. 8.1 Diagrammatic Representation of the Structure of Mind

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Id is the source of mental and instinctive energy. It is seated in the unconscious and works on 'pleasure principle'. It believes only in what Freud calls 'true psychic reality'. It knows nothing about rules, regulations, values and moralities and never bothers about the objective reality in society. The main objective of id is to avoid pain and discharge tension. It must satisfy its needs, even if it has to arrange imaginary means such as nocturnal dreams. But such imaginary means is not really capable of reducing tension. For example, the image of food cannot satisfy hunger.

The second important system of personality is ego. As we have already seen, at birth, a child is capable of only a few instinctive responses. With gradual physical and psychological development and due to some references from others the child develops the sense of 'I' 'my' 'mine' and 'me'. This is the beginning of the development of 'ego'. It occupies a central place in the structure of the psyche and is seated in all the three regions of mind. The basic difference between 'id' and 'ego' is that id knows only the subjective reality of the mind, whereas the 'ego' differentiates objective reality, i.e., concrete external reality from the subjective reality, i.e., imaginary reality. In order to avoid tension the id seeks to satisfy needs immediately, whereas the ego restricts satisfying needs unless an appropriate object of satisfaction is found. The ego makes the decision as to what is right and what is wrong, what is acceptable and what is not acceptable or what is possible what is not possible. The ego guides the individual in making a choice from among these alternatives on a realistic principle.

The superego is the third and the last system of personality. It is described as the earliest moral code of the child and in this sense it is the direct antithesis of id. Superego is also seated, like id in the unconscious region of mind. It stands for the values and norms of the society, which the child imbibes through the process of socialization. It strives for neither real, nor imaginary real. It is only concerned with what is ideal. Its primary function is to decide whether the chosen object of satisfaction of needs is right or wrong from the point of view of the moral dictates of society.

In this whole structure of psyche, the ego occupies a central place because it is expected to maintain a balance between the two opposite forces of id and superego. As we have already seen the id demands direct instinctual satisfaction whereas the superego as an internalized moral code checks the flow of the id into undesirable and unapproved channels. According to Freud, the sole purpose of psychoanalysis is to strengthen the ego. A weak ego is prone to all disorders. If the ego remains weak and id becomes stronger then the result would be an antisocial behaviour, delinquency or crime. If the superego starts dominating the psyche the result is suppression, leading to neurosis. Therefore, for the development of a healthy and socially useful personality, it is necessary to have a proper balance between the id, ego and superego.

Check Your Progress

8. Define socialization.
9. State any two characteristics of socialization.
10. What are the three basic elements of Cooley's theory of socialization?
11. According to Freud, what are the three main regions of the human mind?

8.6 SUMMARY

- Sociology, according to Duncan is the scientific study of dynamic processes of interactions of person and the patterns these form in relation to biological, psychological and cultural influences. It studies social phenomena, social organizations and cultural patterns.
- Educational sociology is a synthesis of education and sociology. It is the study of the principles of sociology of education. It is a science born of sciences. According

to E. George Payne, known as the father of educational sociology, educational sociology is 'an applied science in the field of sociology'.

- Educational sociology is not merely theoretical, i.e., it does not merely study the forces of interaction between the individual and the society or the group, but it is also practical because besides studying the interacting forces, it tries to regulate and control the interacting forces.
- The subject of educational sociology is the constant and dynamic interaction of the individual and his cultural environment or the basic pattern of life. It is, therefore, according to Dodson, interested in three things: total cultural milieu, the school as its agency and the educational process that conditions personality development.
- Educational sociology, according to Herrington, has four specific aims. They flow from the larger aim, i.e., to achieve better personality development by influencing the processes of education.
- Educational sociology should explain (a) the role of the school in the community (b) the role of the school (c) and the social factors influencing schools.
- Educational sociology should understand democratic ideologies, cultural, economic and social trends that influence formal and informal agencies of education.
- Educational sociology should estimate the social forces and their effects upon individuals.
- Social changes are the changes that occur in various components of socialization discussed above for whatever reasons and circumstances.
- There are different types of social change. The term 'social' is so vast in scope that different forms of change which carry several names of their own can actually be brought under the broader concept of social change.
- Socialization is a process, whereby people acquire the attitudes, values and actions appropriate to individuals as members of a particular culture.
- The home as an informal agency of education is the oldest institution. From time immemorial, the parents have been the chief teachers.
- It is at home that the child learns to walk and talk, to distinguish the simplest properties of the things that he sees and uses, to imbibe certain moral values, to differentiate between right and wrong, good and evil and to experience some of the deepest of human affections.
- The school can solve the social and cultural problems confronted by the community by many different ways. For example, the social problems like untouchability, health and hygiene should be discussed by the students, teachers and the members of the community and desirable solutions should be found.
- Cooperation between the society and its various units is very necessary. If there is lack of co-operation between family and school and between society and school, no suitable environment for the child will be possible the problem of cooperation between the society and school is not so complex as between the school and family.
- Education in the present day context is the most important and dynamic force in the life of individual, influencing his social development. It functions more as an agent of social change and mobility in social structure.

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8.7 KEY TERMS

- **Educational sociology:** It is the study of the principles of sociology of education.
- **Social changes:** These are the changes that occur in various components of socialization for circumstantial and fundamental reasons and circumstances.
- **Socialization:** It is a process, whereby people learn the attitudes, values and actions appropriate to individuals as members of a particular social group.
- **Ego:** It occupies a central place in the structure of the psyche and is seated in all the three regions of mind.

8.8 ANSWERS TO ‘CHECK YOUR PROGRESS’

1. According to E. George Payne, ‘educational sociology is ‘an applied science in the field of sociology’. It is concerned ‘with the effect of learning on group life and in its turn the effect of smaller group life upon the larger group, since the subject matter of educational sociology is the process of social interaction.
2. Educational sociology should estimate the social forces and their effects upon individuals.
3. Biology and psychology have been found to be incomplete in explaining human behaviour, and therefore needs to be supplemented by educational sociology.
4. To make the society worth living, education and society should be closely associated with each other.
5. Some of the ways in which education affects social change are listed below:
 - Education helps perpetuities, stabiles and consolidates some eternal values by means of its programmes and application, thus, inculcating faith in social change.
 - Helps understand and accept the emerging social change smoothly and willingly.
6. The two functions of schools as agents are:
 - Conservation and perpetuation of school life
 - Promotion of culture and civilization
7. Two educational functions of home are:
 - Emotional development
 - Development of mental ability
8. Socialization is the process of learning socially desired values, norms and roles by members of a particular group or society. Learning to live in society is called socialization.
9. Two characteristics of socialization are:
 - (a) Socialization is a lifelong process
 - (b) It helps in the inculcation of principles, values and symbols of a social system

10. The following are the three basic elements of Colley's theory of socialization:
 - (i) Imagination of our appearance to the other person
 - (ii) The imagination of his judgment of that appearance
 - (iii) Some sort of self-feeling, such as pride or mortification
11. The three main regions of the human mind are consciousness, pre-consciousness and unconsciousness.

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8.9 QUESTIONS AND EXERCISES

Short-Answer Questions

1. Define social change and explain the concept in brief.
2. What are the determinants of social change?
3. How does education act as an instrument of social change?
4. How can education solve the social and cultural problems of the community?
5. What are the functions of the family as an agent of education?

Long-Answer Questions

1. Explain the nature of social change.
2. Which are the various forms of social change?
3. Describe the ways in which education affects social change.
4. Describe the evolution of schools as agents of socialization.
5. Explain any two theories of socialization.
6. In what way can schools be described as centres of community?
7. Discuss the importance of cooperation between school and society.

8.10 FURTHER READING

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UNIT 9 EDUCATIONAL AND SOCIAL CHANGE IN INDIA

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Structure

- 9.0 Introduction
- 9.1 Unit Objectives
- 9.2 Modernization and Education
 - 9.2.1 Role of Education in Modernization
- 9.3 Agricultural, Industrial and Technological Developments
 - 9.3.1 Agricultural Developments
 - 9.3.2 Technological Developments
 - 9.3.3 Industrial Developments
- 9.4 National Integration
- 9.5 International Understanding
 - 9.5.1 Role of Education in International Understanding
 - 9.5.2 Role of UNESCO in Education and International Understanding
- 9.6 Summary
- 9.7 Key Terms
- 9.8 Answers to 'Check Your Progress'
- 9.9 Questions and Exercises
- 9.10 Further Reading

9.0 INTRODUCTION

Scholars debate if change is a revolutionary process or it happens gradually. However, they settle with the fact that it is both an evolutionary and a revolutionary process.

Every change has an effect over different aspects of life and different components of the societal system. The development of the Internet, for example, in contemporary society has enormous implications for other institutions and ideas—it affects psychology, ideology, the political system, industry, education and the media. It is a revolutionary force but it builds upon previous developments so that it is both gradual and insurrectionary (Hoffman 2006).

It is a fact that a nation cannot move forward unless its education system is geared towards futuristic goals for the overall development of its various aspects such as economy and media. In this unit, you will learn about the various aspects of social change, the role of education as an instrument of social change, the meaning of modernization and the role of education in modernization.

9.1 UNIT OBJECTIVES

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

- Explain the concept, factors, conditions and constraints of social change
- Analyse education as an instrument of social change
- Discuss the meaning of modernization
- Identify the role of education in modernization

- Discuss agricultural, technological and industrial developments
- Explain how education helps in national integration
- Discuss the role of education in international understanding
- Describe the concept of internationalism in Indian education

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9.2 MODERNIZATION AND EDUCATION

The report of the Education Commission (1964-66) states, 'The most distinctive feature of a modern society, in contrast with a traditional one, is in its adoption of a science-based technology. It is this which has helped such societies to increase their production so spectacularly. It may be pointed out, however, that science-based technology has other important implications for social and cultural life and it involves fundamental social and cultural change which is broadly described as modernization. Thus, modernization is a process of change from traditional and quasi-traditional order to certain desired types of technology. These changes take place in values, social structure, and achievements of the students. In the words of William E. Moore, 'Modernization is a revolutionary change leading to transformation of a traditional or pre-modern society into the type of technology and associated social organization that characterizes the advanced, economically prosperous and relatively politically stable nations of the western world.'

Nearly one-third of the countries of the world have been branded as developed countries and two-thirds as the developing countries. These developing countries have a traditional type of society. Their tradition is based on some unscientific attitudes which obstruct advancement. Their cultural life is based on superstition, ignorance and orthodoxy. Now there is a need to transform these countries into a society which is technology-oriented and scientifically attuned. This process of transformation is known as modernization.

Modernization refers to the changes in material elements and also the belief of the people, their values and way of life as a whole. The process of modernization aims at bringing about desirable changes in the social structure, values and the social norms.

Mere imitation of the way of life of the advanced countries is not modernization. Every developing country has a right to learn a lot from the advanced countries. But it should not be a carbon copy of some other country. A society can become modernized, if it does not lose its identity and makes full use of the discoveries and innovations in the field of science and technology. Such a society should use the natural resources profitably for improving the living conditions of the people. Instead of ignoring the cultural heritage, it adds some new cultural elements. It accepts scientific and technological advancement.

A modernized society is one which adopts a new way of life according to the changing circumstances and does not remain at a level of 10th century society. If it remains at the level, it will be just like persons who use a watch, travel by train and bus, watch television, but follow the traditional way of life. Modernization is a process of changing the outlook of man. In this respect, education plays a very important role.

Modernization versus Westernization

Some people consider Western way of life as an indicator of modernization. In order to be modernized, they blindly follow Western way of life, language dressing pattern. Thus, they become a carbon copy of the West. If we scientifically analyze the problem we will

find that modernization is in no way connected with Westernization. There are certain arguments, in favour of this view. First, it is not wise to say that the Western civilization can work as a model for all the countries of the world. Second, we cannot accept the Western way of living and thinking. For example, the world experienced two global wars because of difference in economic and political ideologies. Third, some of the values of the West may not be accepted by different countries. Fourth, if we analyse the way of life of the Japanese, we will find that this country can contribute a lot to the process of modernization, even if it is a non-western country. Fifth, it is not at all desirable on the part of a nation to lose its identity in the name of modernization. It will be a destructive policy and will make a clean sweep of the entire cultural heritage. Thus, westernization should not be considered as modernization.

Industrialization is not modernization

Some people think if we can industrialize our country, we can be modernized. But by starting industries, modernization cannot take place. Industrialization can only help in the modernization process. It speeds up and directs the process of modernization. It cannot be considered as modernization itself. If we open an industry, we can change our economic life and understand the value of technological advancement. But it cannot be considered modernization. For example, the economies of some Middle Eastern countries have developed a lot because of the use of scientific methods of extracting oil. But the nations cannot be considered modernized, because they have not changed their traditional outlook.

We experience modernization in many different forms. The most spectacular of it is industrial and technological forms. Besides these, modernization also takes place in the field of education, culture, social order, methods of agriculture, bureaucracy and so on. When changes take place in these areas, we call it modernization.

Development of modernization

History of modernization states that it was first initiated by West European countries and the USA. Rapid industrialization and their monopoly in the markets of their colonies changed their economy. As a result of this there took place a change of attitude. They also influenced their colonies towards their way of life. Thus, started the process of modernization.

With the outbreak of October Revolution in Russia in 1917, another type of modernization began. It started with non-capitalist economy. Emphasis was laid on public ownership of the means of production and distribution. Many developing countries of the world followed their pattern. Thus, modernization began with two patterns—the capitalist and the non-capitalist.

9.2.1 Role of Education in Modernization

From the discussions above, it appears that patterns of modernization have many implications for education. The capitalist pattern of education aims at developing affluent society and enables every individual to further his interests. The non-capitalist pattern of education aims at eradicating poverty and removing disparities in every field. They aim at social uplift but not the uplift of an individual in his own personal capacity. People purchase education in a capitalist country. But education is meant for all in a non-capitalist country.

Education in the present day context is the most important and dynamic force in the life of an individual, influencing his social development. It functions more as an

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agent of social change and mobility in social structure. It leads to economic development by providing ways and means to improve the standard of life. The positive attitude towards education leads to socio-economic mobility among the individuals and groups. That means, a person who is born in an agricultural family can, by means of education, become an administrator or any other government employee. Secondly, education leads to change in the lifestyles of people. It modifies the attitudes, habits, manners and their mode of social living. Thirdly, the education is responsible for inter-generational mobility among the individuals and groups. Through inter-generational mobility, social groups are able to maintain their status and the status of their family. Therefore, it can be said that education plays an important contributory role in the mobility of individuals and groups regarding their social position, occupational structure, styles of life, habits and manners.

Education in a modern society is no longer concerned mainly with imparting of knowledge and preparation of a finished product, but with the awakening of curiosity, the development of proper interest, attitudes and values and the building up of such essential skills as independent study and capacity to think and judge for ourselves, without which it is not possible to become a responsible member of a democratic society. Therefore, the process of modernization will be directly related to the process of educational advancement. A sure way of modernizing a society quickly is to spread education, to produce educated and skilled citizens and to train an adequate and competent intelligence, coming from all strata of society and whose loyalties and aspiration are deeply rooted in the sacred soil of India.

Explosion of knowledge

There has been an unprecedented explosion of knowledge in the last few decades. In a traditional society, the quantum of knowledge is very limited and gradually increases so that the main aim of education, i.e., preservation, promotion and maintenance of existing culture is achieved. But in the present society, the quantum of knowledge is vast. Hence, one of the important tasks of education in the present day society is to keep pace with this progress of knowledge. Knowledge these days should not be received passively. Rather, it should be discovered actively. For example, when the traditional society lays emphasis on 'to know' only, the modern society lays stress on 'to know by heart'. Thus, it encourages creative and critical knowledge. In the words of the Education Commission, 'In India, as in other countries where similar conditions prevail, this would require, among other things, a new approach to the objective and methods of education, and changes in the training of the teachers. Unless they are trained in new ways of teaching and learning the students in schools and colleges will not be able to receive the type of education needed for the new society.'

Rapid social change

Another important feature of the present day society is the quick and breath-taking rate of social change. Due to the rapid change, the centres of learning should be alert in order to keep abreast of significant changes that are taking place in the society. There is need for adopting a dynamic policy in the field of education. The system of education which does not take into account this aspect, becomes out-of-date and out-of-tune and stands in the way of development, both in quality and quantity. The Education Commission, therefore, recommends, 'The very aim of education has to be viewed differently it is not longer taken as concerned primarily with imparting of knowledge or the preparation of finished product, but with the awakening of curiosity, the development of proper interest,

attitudes and values and the building up of such essential skills as independent study and the capacity to think and judge for oneself without which it is not possible to become a responsible member of a democratic society.’

Need for rapid advance

Once the process of modernization is launched, it is not possible to go back or to stop the process half-way. At the initial stage there is a possibility of disturbance of the traditional equilibrium reached and maintained over centuries. Besides this, there is the possibility of a lot of unexpected social, economic, cultural and political problems. If we do not accept these changes or if our convictions become half hearted, the new situation will become worse than the traditional one. Hence, it is wise to move rapidly forward and create a new equilibrium, based on the process of modernization.

Modernization and Educational Progress

On modernization and education progress, the Education Commission states, ‘The progress of modernization, will therefore, be directly related to the pace of educational advance and the one sure way to modernize quickly is to spread education, produce educated and skilled citizens and train an adequate and competent intelligentsia.’

The Indian society today is heir to a great culture. Unfortunately, however, it is not an adequately educated society, and unless it becomes one, it will not be able to modernize itself and to respond appropriately to the new challenges of national reconstruction or take its rightful place in the community of nations. The proportion of persons who have so far been able to receive secondary and higher education is very small, at present less than two per cent of the entire population. This will have to be increased to at least ten per cent to make any significant impact. The composition of the intelligentsia must also be changed. It should consist of able persons, both men and women drawn from all strata of society. There must also be changes in the skills and field of specialization to be cultivated. At present, the intelligentsia consists predominantly of the white-collar professions and students of the humanities while the proportion of scientists and technical workers in its ranks is quite small. To change this, greater emphasis must be placed on vocational subjects, science education and research. The average level of competence is not at all satisfactory due to inadequate standards maintained in the universities. This is inadequate standards maintained in the universities. This is damaging to Indian academic life and its regulation. In order to change this situation radically, it will be necessary to establish a few ‘major’ universities in the country which attain standards comparable to best in any part of the world, and which will gradually spread their influence to others. In the changing contemporary world, function and organization of education at different stages need rapid evolution to meet the demand of modernization.

Modernization is a process of bringing change. But this change does not necessarily mean a complete isolation from our own tradition. In order to modernize society, attempt must be made on the foundation of the past, reflecting the needs of the present and vision of the future society. Modernization of Indian society should be based on moral and spiritual values and self-discipline. The Kothari Commission, therefore, opines that ‘modernization aims, amongst other things, at creating an economy of plenty which will offer to every individual a larger way of life and wider variety of choices. Freedom of choice has some advantages no doubt, but it also depends on the value system and motivation.’

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Knowledge and power of the people age expanded because of modernization it is, therefore, necessary to strengthen and deepen the sense of social responsibility and power of appreciation of the spiritual and moral values.

Modernization should not be madly followed at the cost of human values. Therefore, attempts must be made to inculcate value-oriented deduction at all stages of education children should learn to maintain a balance between spiritual and material values of life while modernizing them.

9.3 AGRICULTURAL, INDUSTRIAL AND TECHNOLOGICAL DEVELOPMENTS

‘Social change is a term used to describe variation in or modification of any aspects of social processes, social interactions or social organization’, (Jones) and are ‘variations from accepted modes of life’ (Gillin & Gillin) existing in a society from time to time.

Society is dynamic, it grows and it grows through social change caused by various circumstances and reasons over a period of time. Social change is, in fact, a variation in perception between generations separated by time and space.

Factors and Conditions Influencing Social Change

We have already made a passing reference in a preceding section to some of the factors that influence and cause social change. These are called the determinants of social changes and are structural in nature as they may affect the social structure of a setup. The determinants of social change, hence, are:

- Physical environment
- Scientific and technological advancement
- Inter-dynamics

Forms of social change

There are different types of social change. The term social is so vast in scope that different forms of change which carry several names of their own can actually be brought under the broader concept of social change. However, different types of change are discussed below for better understanding of the concept.

- 1. Social and cultural change:** Social and cultural changes are often regarded as the same and denote similar kind of change. However, there are differences between the two. Social refers to interactions and interrelationship between people. Culture on the other hand refers to the customs, beliefs, symbols, value systems and in general the set of rules that are created by people in society. It can be both material and non-material. Material culture consists of manufacturing objects and tools like automobiles, furniture, buildings, roads, bridges, books, mobiles, TV sets and anything of that sort which is tangible and is used by the people. Non-material culture includes belief systems, values, mores, norms, habits and language. The concept of culture relates to the body of knowledge and techniques and values through which a society directs and expresses its life as an interacting entity (Mohanty 1997). So, the change in social relationships, human interactions, modifications in role expectations and role performance are regarded as social change, whereas changes in human artifacts, beliefs, values and body of knowledge are called cultural change.

Check Your Progress

1. Define modernization.
2. What is the role of education in modern society?

Culture changes through time and it spreads from place to place and group to group. As Biesanz and Biesanz (1964) put it, in the span of time since the Second World War, immense changes have taken place. Television, since the experimental stage before the war, has entered almost every living room in the world. From the first atomic reaction in the early decades of 20th century, we have progressed to space capsules and satellites and in a few short post-War years, plastics and synthetic fabrics, wash-and-wear clothes, stretch socks, automatic washers, dishwashers, clothes driers, food freezers and packaged mixes have changed the housewife's fate.

It is important to mention here that sometimes changes that occur in a cultural system don't go smooth and face maladjustment with other parts of the system. Such a situation is termed as cultural lag. Defining the concept, Ogburn (1957), wrote, 'A cultural lag occurs when one of the two parts of culture which are correlated changes before or in greater degree than the other parts does, thereby causing less adjustment between the two parts than existed previously.'

However, any cultural change has its impact on human relationships and, therefore, influences social changes too. The advent of mobile telephony and internet has far-reaching consequences on interpersonal relationships. Thus, cultural change positively affects social change and change in a society comes through both social and cultural changes.

As Kingsley Davis stated, cultural change is broader than social change and social change is only a part of it (Shankar Rao, 2000). All social changes are cultural changes, but not vice-versa. Those cultural changes that affect social organizations and human interpersonal relations can be called as social changes.

2. Social change and social progress: Progress is a change in a desirable direction. It can also be referred to as change for the better. It involves value judgement because it implies betterment or improvement. Progress involves change that leads to certain well-defined goals. It is also a type of social change. However, there are differences between the two. Every change is not progress, but every progress can be called as a change. Moreover, change is a value-free concept, while progress always denotes change for the better. In that sense, progress is a value laden concept. It has been discussed before that change can be planned and unplanned. Nonetheless, progress is always planned and ideally fixed. Besides, change is obvious and certain. Small or big, slow or fast, change takes place in every society, but progress is uncertain (Mohanty, 1997).

3. Social change and social evolution: The use of word evolution or social evolution in sociology is borrowed from biology. Biology studies organic evolution which denotes the evolution of all kinds of organisms. Social evolution on the other hand refers to the process of evolution of human society, human social relationships, societal values, norms and the way of life. It involves the idea that every society passes through different phases, from simple to complex.

Sociologists and social anthropologists were impressed by the idea of organic evolution which could convincingly explain how one species evolves into another, and wanted to apply the same to the social world (Shankar Rao 2000).

As put forward by MacIver and Page (2005), evolution means more than growth. Growth does connote a direction of change, but it is quantitative in character. Evolution involves something more intrinsic, a change not merely in size, but at least in structure also. Social evolution is also a type of social change. Both of

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them are natural and are inevitable facts of life. However, there are differences between the two. First, every change is not evolutionary in nature, whereas, evolution always implies change. Second, evolution, unlike change is a continuous process. Third, the cause of social change may be both internal and external, whereas evolution is mostly affected through the operation of internal factors. Fourth, social change can be planned or unplanned but evolution is an automatic process. Fifth, social change is a value-neutral concept, whereas evolution is value-loaded. Sixth, there can be slow or fast social change, but evolution is always a slow process (Mohanty, 1997).

As discussed in the beginning of this sub-section, any kind of change that we witness in the society can come under the broader definition of either social or cultural change. However, some specific variety of change can also be discussed here, although they come under the umbrella term of social or cultural change.

- 4. Demographic change:** Demography deals with the size, distribution and growth of population over a period of time. Demographic change is change in the patterns of fertility, mortality, age structure and migration. High fertility or high mortality can have important implications in any society. The same can happen if the rates of such indicators are too slow. High fertility might lead to large-scale instances of poverty and unemployment, and might affect the developmental efforts of a state. Over-population also leads to greater use of natural resources and affects environmental sustainability. High birth and death rates bring about change in the attitude of people towards family and marriage.

In India, demographic change in the form of high fertility led to the adoption of family planning programmes and following which there was a decrease in the population growth rate. The small family norm has introduced change in social relationships between husband and wife, parents and children, the status of women and so on.

- 5. Technological change:** The human civilization is moving from the most rudimentary technology of bow and arrow to the modern and highly sophisticated instruments of the present day. The invention of computers, Internet, mobile phones, jet planes, atomic bomb and discoveries made by men like Vasco da Gama and Columbus have changed the socio-cultural space of the modern man dramatically. Ancient man walked bare feet, then came the bullock cart which moved comparatively faster. Subsequent technological innovations brought about bicycles, automobiles, jet planes and so on. These have helped the movement of people faster than ever before. These technological changes have enormous societal implications. The introduction of high-yield seeds in the form of Green Revolution in India that ensured massive increase in food grains like rice and wheat managed the hunger situation in the country quite well. Dramatizing the fact that technological change may lead to social change, sociologist William F. Ogburn once attributed the emancipation of women to the invention of the automobile self-starter, which enabled women to drive cars, freed them from their homes and permitted them to invade the world of business (Biesanz and Biesanz 1964). The modern means of entertainment and communication like TV, and laptops or tablets, Radio, Internet, cell phones have drastically changed the family life in India and substantially affected the role of women in society. Not only are they empowered and emancipated but also the husband-wife ties are now being seen as that of co-partners rather than that of superiors and inferiors. Although technological changes

have not spread equally everywhere in the country, still phenomenal improvement in this respect cannot be ignored.

- 6. Economic change:** Economy plays a cardinal role in man's daily life. Noted sociologist and philosopher, Karl Marx pointed out the significance of economy as a factor in social change. As he says, a conflict between the oppressor and the oppressed, haves and the have-nots brings change in the society and the society transforms to a new mode of production. In this manner, Marx says, society gets transformed from primitive communism to slavery, slavery to feudalism, from feudalism to capitalism and from capitalism to a classless society (Morrison, 2006). In Indian society, industrial economy brought enormous change in the lives of people.

Not only did it change the occupational structure in the society but also affected inter-personal relationships. People from rural areas migrated to cities to work in factories. This drastically reduced the effect of caste/untouchability and also transformed joint families to nuclear households. India, once an agricultural economy, is now manufacturing industrial products to emerge a world leader in producing software, making it a service economy. Software giants like Infosys, Wipro and TCS are world renowned. So, the economic change is one of the important forms of social change.

Interrelationship between Change and Development

Development is a form of change. However, there are differences between the two. Change is a value-neutral concept while development, as discussed in the previous sections, is value-loaded one. Change is ethically neutral and suggests alterations or modifications in the structure and functioning of society over a period of time. Development on the other hand advocates change for good. It is a process of desired change. Although development leads to change, all forms of change don't indicate development. Those changes which are planned are termed as development. A change to be defined as development must occur continuously in a desired direction. These desired goals are set looking at the values, norms and needs of any society. Any change in society must get absorbed in the system and must be felt by the people to make it more effective. Such change can then be regarded as development.

Advancement in education and modern means of transport and communication has resulted in high female literacy in the modern societies. This has led to women joining in various jobs in both government and non-government establishments, changing the family relationship as a whole. Such a move leads to a situation like role conflict where the modern women are confused whether to perform the role of a traditional family woman, a mother, a daughter, a wife or to play the role of a teacher, an administrator or an engineer. Such a phenomenon is an example of social change.

However, such change can be regarded as development only when proper institutional arrangements and social adjustments are made so that working woman does not face the situation like role-conflict and manages both her roles well. Such institutional arrangements and social adjustments will then be called as development (Jena and Mohapatra, 2001; Mohanty, 1997).

Development is a multi-faceted term and there is a lot of confusions over its meaning and definition. Questions are often raised about how one should count the development parameters. How can a society be called developed and underdeveloped?

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What should be the basis? Education is the medium through which the members of society are socialized and the modern means of knowledge, skill and technique are imparted to them. Formal education and training expands opportunities for people and increase their capacities.

Availability of educated labour force in a country is a prerequisite for development, better governance system and healthy functioning of democracy. In India, to eradicate illiteracy, the successive governments have come out with policies like Sarva Shiksha Abhiyan (SSA), Midday Meal Scheme, Mahila Samakhya Scheme, and Teacher Education Scheme. Following the National Literacy Mission (NLM), set up in 1988, the Total Literacy Campaign was initiated to eliminate illiteracy. India's soaring literacy helped the country to become a knowledge economy. From a mere 12 per cent during Independence, India's literacy has reached 74 per cent according to the 2011 census. This is a strong indicator of development.

Result of Social Change

The form of each aspect of social life is being continually transformed to the effect of the aforementioned factors which cause social change. New institutions and associations are being formed and destroyed in all spheres. The form of family, marriage, state, religion, civilization, culture educational system, economic structure and social structure is always changing and being transformed. As a result, a change occurs in the life of an individual and his relations with others. To take an example, the result of social change can be well understood and realized by studying the history of the objectives, structures, forms, importance, and functions of the family from the early past to the present day. Similarly, the change and difference that is seen between the tribal society and present day society can be attributed to social change. Weinberg and Shabat have correctly said, 'Social change lies at the heart of the modern world.'

Education today

Education in the present times is geared towards the promotion of a society that is urban and thrives on competitive consumerism. With the help of the education system that currently exists in India, several scientists have emerged, including technocrats and professionals who have excelled in their fields and made a mark at both national and international levels.

The question is not to what extent the education system provides employment but that it provides modern technology that benefits the deprived and the poor. The question here is that of educational quality.

Rather than just look upon the ever increasing population as being a liability, the right thing to do is to convert this population into the nation's strength and asset and at the same time try to control the growth of population. This is possible through human development and education.

The present education system in India seems to possess the following three major deficiencies:

- It is incapable of fortifying or even generating such knowledge which will be relevant to India's changed society.
- The technology which is associated with a specific body of knowledge is not appropriate for the stage of development that India is in so far as the demands of investment or employment potential are concerned.

- Education has been incapable of providing value framework that could have created committed professionals technocrats bureaucrats and politicians who could have taken India to the highest levels by providing the nation with sophisticated system of support services.

Despite the fact that education cannot ensure that every individual will attain a high position or high status, in the absence of education it is not likely that an individual will attain social mobility. There are three ways in which education helps to equalize opportunities:

- Providing opportunity to everyone who wants to be educated and has the ability to benefit by that facility
- Developing such education content which is capable of promoting the development of an outlook which is both objective and scientific.
- Creating a social environment of mutual tolerance based on class caste language religion and so forth, for making available to all the individuals within the society equal opportunities of social mobility, and also providing equal opportunity for secure good education.

Social change and the indian educational system

As we have already established, when social change occurs, there is need for the educational system to respond with adapting to the change. If the change in the educational system is not in keeping with the changing needs, goals, objectives, and aspirations of the various social groups, then a lag will be created between the society and the education system. There have been several such lags in the Indian educational system post-Independence and this had led to education performing a dysfunctional role in the Indian society. This has been fully accepted by the Kothari Commission as the quoted text below reveals:

‘As is well known, the existing system of education is largely unrelated to life and there is a wide gulf between its content and purposes and the concerns of national development. Instead of promoting social and national integration and making an active effort to promote national consciousness, several features of the educational system promote divisive tendencies; caste loyalties are encouraged in a number of private educational institutions; the rich and poor are segregated, the former attending the better type of private schools which charge fees while the latter are forced, out of circumstances, to attend free government or local authority.’

9.3.1 Agricultural Developments

India’s Green Revolution provides an example of development initiative that is planned and it we can study each one of the features that are associated with and essential to a process of development. Upto the 1960s, there was no marked difference in the way agriculture was practiced in India from how it was practiced during the British rule in India, about 200 years back.

In India, we look at the Green Revolution as being that which introduced into the mainstream of agriculture hybrid varieties of grains, wheat and rice. It must be noted that it is not just adopting these hybrid seeds that brings about green revolution, but for the success of the revolution there is also a need for a comprehensive and well-coordinated programme involving multiple changes in the way society managed the production of food.

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Agriculture in India, before the Green Revolution, followed the pattern of subsistence-level farming, and therefore the produce was not enough to fulfill the nation's food needs. Often, this would cause shortage of foods and at times even famines. Such adverse situations were dealt with through imports from other nations. With the Green Revolution India made an effort to end this pattern and make India a self-sufficient nation in terms of food production.

It was realized by the Indian government that for the success of the Green Revolution several things needed to be done to garner cooperation from the Indian farmers. To begin with, there was the need to convince farmers that the use of the hybrid varieties of seeds would provide them with higher yields than the traditional seeds that they were using. The farmers also needed to be given the assurance that prices would not come down just because the production had increased. It was also the task of the government to make available high quality seeds, fertilizers, and even ample space for storage. A network of extension agents had to be trained who would further train farmers on the means of using new methods for cultivating their fields.

It was an amalgamation of social change, education, technology and more that helped to achieve this great success and development in agriculture in India.

The above mentioned tasks were accomplished by the government through the formulation of several new organizations. The Food Corporation was set up to procure food grains from surplus production areas and distribute it in the areas with shortages. It constituted an Agricultural Pricing Commission to ensure a minimum floor price to farmers so that there was no disincentive for increased production. Formation of seed and fertilizer corporations was done to make sure that there would be a steady supply of good quality fertilizers and seeds, among other things needed by the farmers to work within the new method of agriculture. There was a lot of motivation amongst agricultural scientists to work better and they were provided better infrastructure facilities and better pay scales.

Above it all, 100,000 demonstration plots were established by the government across the nation to convince the farmers that higher yield would be obtained with hybrid varieties. The success of the Green Revolution can be attributed to several factors one of which is that it was a planned initiative and another that it was a programme that was well conceived and consciously implemented.

9.3.2 Technological Developments

Besides the development in agriculture, a nation's economic growth to a huge extent dependent on technological improvements and upon its technical and scientific human resources. Therefore, technical education plays a critical role in accelerating a nation's industrial development. It makes available a very potent means of skilled manpower development which is needed by the different sectors of the nation's economy. To quote P. R. Dasgupta, 'India possesses Asia's oldest, largest and most diverse infrastructure for scientific and technical training that has made important contributions to the country's scientific and industrial development'.

In India, the structure of the system of technical education comprise several sub-systems like the state and the central governments, universities, All India Council for Technical Education (AICTE), various professional bodies like Pharmacy Council of India and Council of Architecture, and the management committees of individual institutions. The amended Indian Constitution fixes the responsibility for higher education or research and scientific and technical education on the Centre.

In 1948, AICTE was constituted by the Government of India as an advisory body for all matters associated with technical education. AICTE, in 1988, got the 'statutory authority for planning, formulation and maintenance of norms and standards, accreditation, and ensuring the coordinated and integrated development of technical and management education'. In the states, there are three agencies that take care of technical education—State Board of Technical Education, state universities to which college are affiliated and the Directorates of Technical Education.

The 1986 National Policy on Education (NPE) inter-alia defines the policy of the Government pertaining to management and technical education. It stressed on the fact that there was need to reorganizing the system of management and technical education for effectively catering to the changes that were continually taking place in the 'economy, social environment, production and management processes' and to cater to the rapidly expanding knowledge and the advances in science and technology.

Specific guidelines was put down by NPE 1986 for quantitative and qualitative development of management and technical education sectors, for setting up of links between the concerned agencies, assessment of manpower and forecasting of technical education, increasing effectiveness of the system for management of technical education, its delivery systems, put in place such measures which will help in the attainment of better cost effectiveness and resource generation. It has also been emphasized by the National Policy on Education that there should be modernization and removal of obsolescence of workshops and laboratories in polytechnics and engineering colleges for furthering functional efficiency.

Since 1947, due to efforts being made continuously, facilities of technical education in India have seen phenomenal growth. This could be achieved because of careful planning, objective setting, superlative implementation, review of situation and, where required, implementing corrective measures.

There has been a huge rise in formal educational opportunities which is visible in the ten-fold increase in the number of engineering colleges and nearly twenty-fold increase in diploma polytechnic institutions post-independence.

Post 1947, the system of technical education in India became characterized by a tremendous growth the number of student enrollments and even institutions, the wide subject areas and specializations, the setting up of institutions of national importance, setting up of regional-level institutions of excellence, rise of unaided private institutions and the rise of non-formal sector in technical education and even setting up of distance learning programmes at both state and national level.

What expansion took place in technical education happened mainly due to the reasonable investments put into each of the Five Year Plans. Key to this expansion of facilities for technical education is also the role played by private initiatives. An extremely pro-active role has been played by the Government with providing income tax exemption on the donations that are received by the educational institution from private sources. Furthermore, basis a Supreme Court judgement, it is the tuition fees' rationalization that has garnered the enthusiastic response of participation from the private sector.

In technical institutions, the various funding and control patterns have led to different organizational structures in technical education. These structures can be put in different categories on the basis of types of institutions like the Indian Institutes of Technology (IITs), Regional Engineering Colleges (RECs), Government Colleges/Polytechnics, Government - Aided Colleges/Polytechnics, Self-Financing Private Colleges/Polytechnics and Institutes awarding PGDBM/PGDCA. Indian Institutes of Management (IIMs)

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and Indian Institutes of Technology (IITs) are established as institutions that are of national importance and these hold more autonomy in the areas of administration and academics. Besides the system of education of polytechnics and engineering colleges which is formal, several professional bodies exist which hold examinations for serving professionals and award certificates and diplomas recognized as at par with degree/diploma of the formal education system.

For the computer education field, there is an elaborate system of the Department of Electronics (DoE) for providing accreditation to computer institutes in non-formal sector for conductive of specified levels of courses - DOEACC level "O", "A", "B", & "C" if they can meet the criteria and norms laid down by DoE. For education in architecture and pharmacy, it is the Council of Architecture and the Pharmacy Council that hold the statutory obligations and they work closely with AICTE.

Putting in concerted efforts through all the Five Year Plans, India has seen a thumping growth in technical education in the past four decades. Despite the current existence of a diverse infrastructural base, there is a threat to institutional growth and technological capability due to certain distortions and imbalances.

9.3.3 Industrial Developments

Sustainability is threatened due to complex and sudden change in the nation's industrial base as also due to global competition after economic liberalization. To quote P. R. Dasgupta, 'Further, essential initiatives which are entrepreneurial and creative in character and necessary for the indigenous technical manpower to obtain a competitive edge are yet to emerge from the system in a big way.' Additionally, industrial employers do not adequately possess the skills imparted to technical manpower by the system.

It is seen that even in the current style in technical education there is a very low level of participation of women and other sections of society who are considered to be deprived. In technical institutions, there is scarcity of joint collaborative projects with user systems and private sector investment. In technical education's growth, there is a major region-wise imbalance.

Sustaining the current infrastructure, furthering technical education, enhancing output quality, bringing in some new and innovative thrusts and encouraging new thinking in the system should be the plan for future. Furthermore, the focus must be to better govern and manage the existing infrastructure so that accountability and transparency are apparent to the user systems. Also, networking between institutions and multiple utilization of infrastructure facilities needs to be encouraged for resource utility optimization and for spreading excellence among the institutions.

9.4 NATIONAL INTEGRATION

National integration is the awareness of a common identity amongst the citizens of a country. It means that though we belong to different castes, religions and regions and speak different languages we recognize the fact that we are all one.

- Identification of people with nation as a whole and not with sectional identities.
- Doing away with inter-state, inter-linguistic, inter-religious and inter-cultural differences and fostering a spirit/attitude of tolerance, respect and an appreciation of the view-point of those belonging to other states or other linguistic, religious and cultural groups.

Check Your Progress

3. Why was the Food Cooperation of India set up?
4. When was AICTE set up?

Organizing co-curricular activities for national integration

These activities prepare the students for national integration in a direct and an indirect way. They exercise a more effective and useful impact on their personality. This place is comparatively higher than other place. Following are some of the activities that can help in national integration:

- Celebration of national days
- Celebration of birthday's of great men
- Celebrating cultural festivals
- Celebration of festivals
- National Anthem
- Donating Blood
- Organizing adult education programme
- Bulletin board
- Exchange of teachers
- Participating in social activities
- Respecting the National symbols

Adult education

Mass illiteracy and lack of proper education, endanger national solidarity. India is still a land of mass illiteracy. Adult education programmes should be organized while keeping in view the development of national consciousness and national solidarity.

Religious and moral education

It emphasizes the brotherhood of mankind is a great persuading force to bring about emotional and national integration. True secularism is not opposed to religious and moral teaching rather secularism implies true religion and morality.

Taking pledge

Students may be asked to repeat a pledge twice a month dedicating themselves to the service of their country and their countrymen.

Role of Teacher in National Integration

Teacher should play a very effective role for the promotion of national integration. Only national minded teacher can strengthen the spirit of unity and the idea of compositeness. A teacher can make the following contributions:

- **A living model:** A teacher has been regarded as the builder of the nation. He influences the students by his behavior. He should have a national outlook and reflect national consciousness, actions, conduct and behavior so that the students may receive the message of national integration.
- **Broad outlook:** He should rise above petty biases and prejudices. He should be impartial and treat his students equally without distinction of caste, sex, creed, colour and religion.
- **Firm faith:** He should have firm faith in national unity and love for the country.

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- **Saying and doing:** What a teacher does speaks more loudly than what he says. He should do whatever he says. There should be no difference in saying and doing.
- **Correlation:** Teacher must introduce his country in his lessons. The history of His country, its cities, its rivers, its songs, its people etc. History, civics and geography, literature, art and music should be taught from the national point of view.
- **Writing books:** Teacher should co-operate in recasting books on Indian history, civics, literature and language etc. leading the students to appreciate historical, social, cultural, linguistic and religious of the people of India.
- **Moral duty:** Teacher should prepare the students mentally for national integration.
- **Newspaper and books:** The teacher should stimulate students to read newspapers and books of non-communal nature throwing light on the contributions of nationalists.
- **Inspiration:** Teacher should inspire them for having faith and love for national language, national literature, national culture, national festivals, national symbols and national glory.
- **Check wrong tendencies:** When the teacher notices that young minds are going towards casteism, linguism, narrow mindedness, rowdyism and hooliganism, he should try to check them.
- **Implementing government programmes:** The directions and programmes of the government for developing national integration should be taken more seriously and implemented.

National integration is vital for India's survival. It is the cry of the moment. The country must mobilize all its resources to evolve a concrete national programme. The future of the nation is dark unless a high national character of the people is developed

9.5 INTERNATIONAL UNDERSTANDING

The spirit of love, cooperation and friendship among all nations of the world and their people is called international understanding. International understanding is a synonym for world brotherhood or world citizenship. International understanding is opposed to extremist nationalism. This spirit expands an individual's outlook. It cultivates the spirit of 'live and let live'. Its main objective is the welfare of the human race.

Defining internationalism, Oliver Gold Smith has said that – 'Internationalism is a feeling that the individual is not only a member of his own state, but a citizen of the world.'

Defining internationalism, Q. H. Sabine has written that – 'International education, as I understand, it, can never be the negation of national education. It is its completion and its confirmation...International education means that we should seek the understanding of foreign languages and peculiarities through a profound realization of our own values and historical development...We are bound to recognize the perpetual interflow of international currents in the spiritual and economic planes.'

Dr. Walter H. C. Lewis, a former Deputy Director General of UNESCO in his address to the American Association of Teacher Education in Chicago in 1956 stated – 'International understanding is the ability to observe critically and objectively and appraise

Check Your Progress

5. What is national integration?
6. State any four ways that can help in national integration.

the conduct of men everywhere to each other, irrespective of the nationality or culture to which they may belong. To do this, one must be able to detach oneself from one's own particular cultural and national prejudices—and to observe men of all nationalities, cultures and races on equally important varieties of human beings inhabiting this earth.'

Cultivation of international understanding

Several efforts have been made since ancient times to establish peace and cooperation in the world. Indians have been educated in the concept of *vasudhaiva kutumbakam* or world brotherhood, which means accepting the whole world as your own family. In the sixth century, Pierre Dubois presented the view of establishing international schools. After him, in the seventh century, Comenius supported the establishment of Pansophic College that world harmony and peace should be realized for all mankind. In 1912, President Taft of the United States of America convened a conference at Hague for this purpose, but it was not successful. In 1926, the Commission of Intellectual Cooperation was established, but this commission could not succeed due to economic causes and lack of mutual cooperation. In 1925, the International Bureau of Education was set up.

Obstructions in the way of international understanding

There are various obstructions and barriers in the way of international understanding, which include:

- 1. Physical barriers:** People of different countries live in isolation.
- 2. Political barriers:** Narrow nationalism affecting understanding between nations.
- 3. Economic barriers:** Restrictions on international trade, foreign exchange and currency.
- 4. Religious barriers:** Religious barriers leading to prejudices.
- 5. Linguistic barriers:** Different languages not allowing people of different linguistic groups to come closer.
- 6. Psychological barriers:** Frustration and fear born of ignorance, selfishness and hostility leading to aggression and war.
- 7. Educational barriers:** Teaching of social studies leading to narrow nationalism and narrow loyalties.

Internationalism in Indian Education

The Secondary Education Commission Report observes—

'There is no more dangerous maxim in the world of today than 'My country, Right or Wrong'. The whole world is now so intimately interrelated that no nation can or dare live alone and the development of the sense of world citizenship. In a very real sense, therefore, patriotism is not enough, and it must be supplemented by a lively realization of the fact that we are all members of one world and must be prepared mentally and emotionally, to discharge the responsibilities which such membership implies.'

Nationalism should not degenerate into nationalistic jingoism. Dr. Radhakrishnan states that—'We need today an adjustment of the human consciousness of the nuclear age in which we live. It is now conceivable that the human race may put an end to itself by nuclear warfare or preparations for it. This, if it happens, will be the result of the failure of man's consciousness to adjust itself to the technological revolution.'

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K. G. Saiyidain writes, 'There can neither be health, nor economic prosperity, nor the leisured pursuit of art and literature and culture in the world, that is either plunged in or over-shadowed by war.'

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In the words of P. E. James, 'An industrial society, by its essential nature, is global in its scope and international in its needs. If it is to survive it must draw upon all the world's resources and the entire world's people must share its benefits. Our way of living is dependent on the coordinated economic activities of distant people. This is the concept of one world—of one community of interdependent peoples.'

Methods for Creating World Understanding

Teaching for world understanding should pervade the whole educational programme, which includes the attitudes of the staff members, curricular and co-curricular activities, and experiences of the school. We have to fashion and plan our teaching and learning process in such a way that children can grow with a sense of world-mindedness.

I. Curriculum

The curriculum should enable our students to:

- (i) Learn that earth is the home of men and other living beings
- (ii) Learn the similarities and differences of the people in the world
- (iii) Learn the many ways of living on this planet and the reasons for the wide variety of modes of life
- (iv) Learn that world is a place of beauty and serenity, which is in dire need of preservation
- (v) Learn how to promote better understanding of the school spirit and the nature of the teacher-pupil relationship.

Direct teaching for international understanding is also possible. Many teachers believe that it should be undertaken with children from the age of seven and onwards. For example, they can begin to learn something about other countries, their customs and the activities of the United Nations and its related agencies. However, it is important not to confront children with information or abstract ideas beyond their grasp.

(a) Social studies

- Stories of the lives of great men and their main contribution to the world, which includes the lives of Rama, Krishna, Buddha, Jesus, Mohammed, Kabir, Vivekananda, Dayanand and many more as saints and religious reformers, and Mahatma Gandhi, Nehru, Kennedy, Tolstoy, George Washington, Sun Yat-sen and Lenin as fighters for freedom could be included in the curriculum.
- Lives of great scientists and mathematicians, which include Archimedes, Heraclitus, Euclid, Pythagoras, Raman, Faraday, Addison, etc., may be taken up in the form of a simple story and their contributions to mankind be highlighted.
- Adventures of explorers like Marco Polo, Scott, Magellan, Columbus, Vasco da Gama, etc. may be taught to the students.

(b) General science

General science could include topics on our daily necessities like food, water, air and weather. Common diseases of mankind may be included through which

reference could be made to what FAO, UNICEF, CARE, WHO and IMF are doing for us.

(c) Mathematics

The story of numbers, history of lines, and the story of Arab, Indian, Greek and Egyptian mathematicians may be told and simple projects can be devised.

(d) Language

Books on languages could also include the lives of great personalities of the world who have not been mentioned in social studies.

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Middle-school stage

It would be worthwhile if social studies is taught as an integrated subject. Different units may deal with topics on 'Our Rights and Duties as Citizens of free India' (for class VI) and later include the world in class VIII or IX. Teaching human rights would also be possible in this context. Reading newspapers and books could also be an informative topic for class VI and include the work done by UNESCO toward paper and print.

At this stage, it would also be possible to make a comparative study of the religions of the world. In class VIII, common doctrines and tenets could be emphasized, for example, the Ramayana, Gita, Bible, Quran and Guru Granth Sahib along with Zoroastrianism and their Zend Avesta. Great religious personalities like Mahavir, Buddha, Shankaracharya, Nanak, Kabir, Vivekanand, Ramanand and Chaitanya of India, and those of other countries could also be introduced. Their unifying influence on our society and the removal of racial and other prejudices may be emphasized and a reference can be made to the aim of creating universal love for mankind, which is the cherished objective of the United Nations.

Higher secondary stage

International understanding could be promoted through History and Geography, but Civics and Economics provide an easier ground for pointedly teaching about the United Nations and its various agencies. Topics like nationalism and internationalism, the UNO, the former League of Nations, etc. invariably form a part of the Civics syllabus.

Through a study of science, mathematics, languages and arts, a fairly comprehensive study of important personalities and their work can be done by the children of higher secondary classes. In Science, they can have topics on mechanism, transfusion of energy, rockets, space-craft, evolution of earth, story of man and life on earth, through which the work of various organizations can be taught.

It is through literature and language that lives of great poets, musicians, singers, scientists and other great leaders could be taught with a comparative study of their philosophy and work. Works of famous personalities like Dante, Kipling, George Washington, Abraham Lincoln, Nehru, Lenin, Karl Marx, Romain Rolland, Shakespeare and other such men could be included in the curriculum.

Exchange Programmes within India and with other Countries

Different kinds of exchanges between schools in India and other countries could be profitably undertaken as an aid to promote international understanding. Such an exchange would include:

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1. Exchange of outlines of different projects regarding the study of countries
2. Helping students of one group to develop correspondence with children of the same age group in the country taken up for study. The correspondence could help children in collecting information about the varied aspects of the life of people in that country as well as the description of daily life at home, in school, entertainment, games, food habits, dresses, occupations and products
3. Teaching and exhibition materials could also be exchanged, which include:
 - Text-books, reference materials, children's magazines (manuscript and prints), scrap-books, albums, newspapers, tape recorders, folk songs and dramatic scripts.
 - Pictures and books of great men of science, arts, politics and leaders.
 - Children's books—folk tales, explorers, adventurers and prophets.
 - National songs, festivals and procedures for celebrating.

Exchange of teachers

The Indian National Commission and the Ministry of Education should expand the programmes of awarding fellowships to Indian teachers, enabling them to study and work in schools in other countries. Possibilities of school-to-school contacts for exchange of teachers in different parts of the country as well as between India and other countries should be explored. The Indian National Commission could help by preparing a list of such institutions which are interested in these types of programmes.

The help of voluntary organizations like New Education Fellowship, Rotary Club, Lions Club, Experiment in International Living, World Confederation of Organizations of Teaching Profession, Indian Council for Cultural Relations, etc. could be sought for such exchange purposes.

Exchange of students

There are great possibilities of promoting national understanding if educational authorities arrange short duration camps during holidays in which students from one region may live, study and work with students of another region. For the purpose of international exchange of students, the Scout Jamborees, the International Voluntary Work Camp Movement and other such projects may be explored.

Teachers' contribution to international understanding

Teachers can develop attitudes favourable to international understanding among their students. Regarding the role of a teacher, C.F. Strong has observed—'He and the curriculum represent two vital formative factors for translating the aims and ideas of education into practice.'

- **Teachers' role outside the school:** Outside the school, teachers can play their part as intelligent and educated adults. It is the duty of teachers, as people above average in training and in conscientiousness, to find time for grown-ups as well as children, and to give all possible support to those organizations which are concerned with informing and stirring the social conscience of the adult community.
- **Teachers' role in teaching social study:** Teachers must teach students to use their eyes and their ears with sufficient intelligence to distinguish fact from

propaganda and to substitute comprehension for prejudice. They must develop a proper regard for the use of reason rather than force.

- **Teachers' role in understanding the child:** A UNESCO publication reads as follows—"We hold that in a very real sense 'wars begin in the minds of men', that war is a mental disorder strictly analogous with the psychological disease it sometimes causes. Therefore, we regard it as a matter of first importance for social and international living that educators should be more concerned with the child, and the healthy development of his body and mind, than with the contents of the various subjects which go to make a school curricula."
- **Research in international concepts and attitudes:** Investigations can be done by teachers for finding methods where improved concepts and attitudes in the field of international understanding may be developed. At an early stage in the course, the staff should try to learn the attitudes of the students towards other races and cultures in order to determine for each student the extent of training needed for international understanding.
- **Visits to other lands:** Staff members should be encouraged, by leave of absence, financial aid, and by other means, to study and travel in other countries, and the exchange of staff members should be arranged as frequently as possible.
- **Faith and enthusiasm for the value of international understanding:** Teachers should have faith and enthusiasm for the value of international understanding and cooperation and should possess the right equipments to infuse this spirit in the minds of their students.
- **Interpretation of the value of international understanding in the curriculum:** While teaching various subjects, teachers should concentrate on helping students build proper behavior patterns and psychological dispositions, impressing upon their minds that barriers of race, colors and distance do not stand in the way of uniting people of different countries.
- **Objective and impartial in their treatment:** They should avoid indoctrinating the mind of the pupils. They should be impartial and highly objective in interpreting or describing facts and should not be propagandists. They must impress upon the students that there is no special merit or value in being born in one part of the world or another.
- **Well-informed about world situations:** They should be well-informed about the contemporary world scenario and its historical background, and be concerned about improving the conditions of people everywhere.
- **Organization of activities in the school:** They should organize the following types of activities in the school for developing an international outlook in the students:
 - (i) Organization of UN societies and international clubs.
 - (ii) Celebration of social days for heroes of peace and great men of all nations.
 - (iii) Showing dramas depicting the horrors of war.
 - (iv) Encouraging students to collect stamps and develop pen friendships between children of different countries.
 - (v) Organizing debates, lectures and discussions on the United Nations Organization.

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9.5.1 Role of Education in International Understanding

The signatories of the United Nations Charter have pledged to live together in peace with one another as good neighbors, to take effective measures for the removal of areas of differences and to develop friendly relation among nations. It is understood that these ends cannot be achieved without education. This point is explained in the Universal Declaration of Human Rights, in which it is declared that:

‘Education shall promote understanding, tolerance and friendship among all nations, racial or religious groups and shall further the activities of the United Nations in the maintenance of peace.’

One of the Resolutions of UNESCO reads as follows:

‘Member States of UNESCO in accepting its constitution have agreed that the purpose of the Organization is to contribute to peace and security by promoting collaboration among the nations through education, science and culture in order to promote universal respect for justice, for the rule of law, for the human rights and fundamental freedom.’

Functions and Implications of the Programmes for International Understanding

School programmes for international understanding should enable an individual:

- To know and understand how people of other lands live.
- To recognize the common humanity which underlines all differences in various cultures.
- To work for a fair and just cause.
- To maintain an active interest in world affairs.
- To recognize the importance of solving world problems according to democratic practices.
- To appreciate the contribution of all people to the world citizenship.
- To combine love of one’s country with a broad social consciousness towards an inter-dependent community of nations.
- To understand the economic, cultural and similar factors which make the world an inter-dependent community of nations.
- To respect the dignity and worth of man by giving him equality of rights and opportunities.
- To realize that truth always triumphs and leads to human progress and prosperity.
- To believe in common values and goals for the world community.
- To understand that victories of peace are greater than the victories of war.

UNESCO is one of the specialized agencies of the United Nations. Its operation and structure are determined by its Constitution, which was drawn by the members of the London Conference in 1945.

9.5.2 Role of UNESCO in Education and International Understanding

Article 1 of UNESCO’s constitution states–

‘The purpose of the organization is to contribute to peace and security by promoting collaboration among the nations through education, science and culture in order to further universal respect for justice, for the rule of law and for

human rights and fundamental freedoms which are affirmed for the people of the world, without distinction of race, sex, language or religion, by the charter of the United Nations.’

To achieve this broad aim, three main fields of work are prescribed. The first is to collaborate the work of advancing mutual knowledge and understanding of people through all means of mass communication and to work towards the promotion of the free flow of ideas by word and image. The second is to give fresh impulse to popular education and to the spread of culture. Finally, UNESCO has to maintain, increase and diffuse knowledge by various means, including the conservation of world inheritance of learning and culture as well as the encouragement of cooperation between countries in all branches of intellectual activity.

These objectives are confirmed in the Universal Declaration of Human Rights adopted by the General Assembly in 1948. Article 26 of the Declaration proclaims that ‘everyone has the right to education’ and that ‘education shall be directed towards the full development of the human personality and to the strengthening of respect of human rights and fundamental freedoms.’ Article 27 continues by declaring that ‘Everyone has the right to freely participate in the cultural life of the community, to enjoy the arts and to share scientific advancement and its benefits.’

National Commissions

The importance of individual in the kind of the work undertaken by UNESCO was recognized in the Constitution. To make participation by the individual and by private bodies more direct, the constitution provides for the formation of national cooperation bodies, or National Commission, to integrate the individual work in member states with the work of the organization. Most member states have set up such commissions. They are representatives of their respective governments and of the principal national bodies interested in the work of educational, scientific or cultural nature. These commissions function as liaison agencies and sources of information in their own countries.

Programmes of UNESCO

UNESCO strives for world peace by taking the following steps:

- International exchange of teachers and students in order to remove racial prejudices.
- The organization of International Camps where students of different nations will meet each other and exchange their views.
- Organizing tours of foreign countries to bring about mutual understanding and goodwill.
- Organization of study circles for studying the needs of other nations.
- Writing of history books with an international outlook.
- Establishment of an International University to discuss common problems of all the nations.
- Reorganization of the press, radio and cinema for international welfare.
- The reduction of illiteracy, especially in backward countries.
- Translating literacy classics and significant contemporary works.
- Organizing art exhibitions.
- Expansion of libraries and museums.

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- Fostering international understanding through the improvement of curricula and experimental activities in teacher training institutions.

The UNESCO has been doing useful work to provide a proper environment for the success of UNO. Dr. Radhakrishnan has rightly stated, 'There is nothing national with regard to education. The different countries are provinces of a common republic of culture. There is no such thing as Proletarian Mathematics or Nazi Chemistry or Jewish Physics. Culture is international and science is cosmopolitan in its essence and reality.'

Indian National Commission for Co-operation with UNESCO Genesis

An Interim Indian National Commission for Cooperation with UNESCO was set up in 1949 by the Ministry of Education, Government of India. The Interim Commission was placed on permanent footing in 1951 in order to ensure better implementation of UNESCO's programmes in the country. The constitution of the Indian National Commission was revised in 1969. The Commission has a four-year term and was last constituted in 1978.

Activities of the Commission

- Dissemination of information about UNESCO and other countries
- Celebration of UN Day, Human Rights Day, International Literacy Year, Centenaries, Book Years, etc.
- Exchange of persons
- Liaison with states and Universities
- Relations with other National Commissions
- Publications including 'UNESCO Courier'
- Associated school projects
- UNESCO International Coupon Scheme for assisting import of books
- Assisting Indian experts to find UNESCO jobs
- UNESCO Clubs

UNESCO associated school project

There are now over 1,200 schools and teacher training colleges in 81 countries which are participating in this programme. In 1953, India joined the programme starting with six institutions which later increased to three. These schools work on three main themes, which include:

- (a) Teaching about the United Nations and its Specialized Agencies
- (b) Teaching about human rights and fundamental freedom
- (c) Teaching about other countries

UNESCO clubs

The Indian National Commission for UNESCO has been encouraging the establishment of UNESCO Clubs/Centres in different Universities, Public Libraries and other Educational Cultural Organizations in India to function as the main clearing house for disseminating information about the purpose and programme of UNESCO, enlist the support of individuals or groups interested in the fields of Education, Science, Cultural and Mass Communication, and to promote and popularize the work of UNESCO. At

present, there are about 300 UNESCO Centres functioning in India. Sponsoring and setting up of UNESCO Clubs/Centres is a significant step in the efforts of the Indian National Commission for UNESCO to obtain the support of maximum number of agencies for UNESCO Programmes.

The objective of the UNESCO is to cultivate the spirit of respect for justice, administration of law, and human and fundamental freedoms through education, science and culture. Thus, the UNESCO is contributing actively towards the cultivation of international understanding.

Education as the Only Effective Agency for Cultivation of International Understanding

If humanity, pride and fundamental rights of man have to be protected, justice and self-respect have to be realized in the international arena, the next generations have to be protected from the scourge of war, amiable relations have to be built among nations, and international peace and security have to be maintained, then the importance of international understanding will have to be accepted. For the cultivation of this international understanding, we have to accept the fact that all of us are citizens of the world and education is the only agency to realize this. We have to assume that the understanding cannot be achieved by any other agency. In this regard, Bertrand Russell has said that education may not be able to realize internationalism from a political viewpoint, but it is the only agency by which this spirit can possibly be realized.

According to the magazine '*Towards World Understanding*', published by the UNESCO—

“Schools may, and generally do represent the best elements in the surrounding culture. They should be and they generally are, above the average level of the community in their regard for truth and honesty and fair dealing. They contrive to raise appreciably the standards and values of people.”

A plan will have to be devised for the cultivation of international understanding by education. In order to achieve this, the aims of education, curriculum, methods of teaching and textbooks will have to be reconstructed.

International Understanding and Aims of Education

The aims of education in order to cultivate international understanding are:

- Aims determined by UNESCO
- General aims

1. Aims determined by UNESCO

- The spirit of respect for other countries' culture and civilization should be cultivated in students.
- They should be trained to co-exist.
- They should be prepared to take active part in social construction.
- They should be motivated to take active part in social welfare projects.
- They should be acquainted with the lifestyle and customs of all people of the world.
- They should be trained to critically observe the behavior of people from various places.

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- They should be motivated to accept the people of all nationalities and cultures as equal.

2. General Aims

- The spirit of world citizenship is cultivated in children.
- They should be acquainted with the global problems.
- They should be educated to have faith in the aims of constructing the world community and its values.
- They should be acquainted with the achievements of different countries in different fields (economic, cultural, political, etc.).
- They should be given an opportunity to develop free thinking, independent decision-making, speech-making and writing skills.
- The feeling for extremist nationalism should be eradicated.
- They should be motivated towards cultivating collective traits.

International Understanding and Curriculum

There is a need to bring about change in the school subjects being taught under the curriculum. This change or amendment should be in keeping with international understanding. We are aware that the subjects taught to the students have been constructed from a national viewpoint and internationalism has been neglected. Now, there is a need to teach them those subjects with an international viewpoint in such a manner that the national interests are not neglected. Some suggestions regarding change and amendment in the subjects of the curriculum are as follows:

- **Comparative study of religions:** The comparative study of religions should be introduced in the curriculum as an important subject. There are many religions in the world and the numbers of people following these religions are quite large. It would not be out of place to say that many misconceptions and illusions exist about different religions. Its chief cause is that people are not aware of the principles of other religions. They do not know that all religions, despite their external diversity, are one in essence. We will have to acquaint our students with this internal unity of different religions by comparative study. Only then will the students be able to know the real form of religion. Besides, religious education is needed because religion has the ability to incline the human mind to other ideals unlike any other subject. Therefore, religious education can be made an important tool of world peace.
- **Language and literature:** Language and literature can effectively be used to cultivate the spirit of international understanding. There should be an arrangement for the study of different languages in schools so that the students who desire to learn them can do so easily. They should be educated about the great laureates of the world. Poetry, drama, story and novel should be used to cultivate the spirit of love for humanity. They should be told that it is their duty to have compassion for the entire human race.
- **History:** It would not be improper to say that the history we have taught our students has only polluted their minds. Bertrand Russell is absolutely right when he says that every country has described itself to be very superior in the description of its history. Children have been taught that their country is always right and has

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always been victorious. They portray that all great and famous personalities have been associated with their countries and that they are the best compared to all other nations of the world. Thus, we have used history to fill untrue thoughts in the minds of our students. The civilization that we can see today is not the outcome of the great people of any one country; rather, it is the outcome of the collective and joint efforts of people from different countries. Therefore, we will have to study history from the viewpoint of internationalism and will have to teach our students that all nations of the world are important and contribute to the enhancement of our civilization. Such great people have taken birth in all countries of the world, and our world has become great only due to their contribution.

- **Geography:** Geography can teach students that there can be several races in the world due to geographical elements, but there are some powers which are leading them to unity. Geography can help students understand that different countries of the world cannot survive alone as they are mutually interdependent. For example, the grain produced in one country is exported to another country at the time of need. If this does not happen, the people there can starve.
- **Social studies:** This is an important subject which should be started in all schools. The study of social studies can be more effective in cultivating international understanding as compared to history and geography. Through its study, we can present problems before people and devise their solutions.
- **Civics and political science:** Civics can be used to prepare students for world citizenship. The rights and duties should not be restricted within the four walls of a nation; rather, its scope should be extended to the whole world. Students should be acquainted with international politics, international economy and international morality.
- **Science:** There is a need to inform students that scientific inventions like airplanes, radio, television and telephones have turned the world into a global village and has reduced distances, which required active cooperation from the people of the world. Students should be told about great scientists and their inventions. They should be informed that scientists have not only invented for the betterment of their respective countries; they have done it for the entire humanity. Students should be made aware that the sense of secrecy and unhealthy competition found in different nations of the world is harmful for humanity and should be eliminated. Science should be used for the development of the world and not for the purpose of destruction.
- **Art and music:** Art and music manifests the unity of human thoughts and feelings. These can be used to create aesthetics in students in order to sublimate their feelings. They should be told that art and music are not restricted by national boundaries and are not related to any specific country, but the whole world. International understanding can be cultivated easily by different arts and music. Students should be introduced to great artists, singers and musicians of the world.

International Understanding and Co-curricular Activities

Co-curricular activities can prove to be very helpful in the cultivation of international understanding. Therefore, the following co-curricular activities should be organized for this purpose:

- **International days:** Important international days should be observed in schools, such as the UN Day, Human Rights Day, World Environment Day, International

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Literacy Day, World Handicapped Day, International Women's Day, World Health Day, etc.

- **Birth anniversaries of great people:** The anniversaries of great people of the world should be observed in schools, such as Rama, Krishna, Mohammad, Buddha, Guru Nanak, etc., and their ideals and human values should be introduced to them.
- **Talks and lectures:** Scholars who have toured the world, have lived in other countries for a long time or are well acquainted with the world should be invited to schools from time to time to deliver lectures.
- **Competitions:** Competitions such as debates, letter writing, essay writing, poetry, general knowledge, etc. should be held from time to time on topics and problems of international importance. It would acquaint students with international problems and they will take an active in them.
- **Drama and cultural programmes:** Dramas and cultural programmes, depicting the lifestyle, dresses and cultures of people living in different parts of the world should be held at schools, introducing them to other varied cultures all over the world.
- **School magazine:** The school magazine can be used for cultivating international understanding in students. Matters relating to cultures, civilizations and political, economic, social and geographical conditions of different countries should be compiled in the magazine so that children can develop the spirit of love for humanity.
- **Exhibitions:** Exhibitions should be held in schools from time to time through which the students can gain knowledge about the culture, civilization, industries, artifacts, coins, stamps, products, lifestyle, dresses, ornaments, scientific inventions and famous books of other countries.
- **Morning assembly:** In the morning assembly held at the commencement of school, a teacher or student should deliver a lecture on a topic of international importance, like an international event or news. The need for international understanding should be stressed upon in this assembly.
- **Pen-friendship:** Students should be encouraged to form pen-friendships with students of other countries. It would give them an opportunity to come closer to people of other countries and develop an emotional attachment with them.
- **International games:** Games should be held at international level for cultivation of international understanding. It raises the standard and enhances a student's interest in games, at the same time enhancing the attitude of healthy competition and sportsmanship, along with creating an environment of international cooperation and goodwill.
- **Books, newspapers and magazines:** Books, newspapers and magazines should be provided in the schools, giving correct and unprejudiced information of the international world, to impart right, unbiased and sufficient information to students in order to develop a proper attitude, since their prejudices cannot be eradicated in the absence of correct information.

Prejudices cause offensive behaviour in students. Therefore, students should be encouraged to read small books published by the UNESCO, which introduces them to the lifestyle in different countries.

- **Radio and television:** Radio and television should broadcast discussions, lectures, seminars, dramas, poetry, arts, lifestyle manners, natural situations, games, tourist spots, etc., cultivating an interest in students.
- **Assistance to people suffering from natural calamities:** People suffer from different natural calamities, such as earthquakes, famines, floods, etc. Students should be encouraged to collect money and other articles to help these people. This would cultivate the spirit of world brotherhood in them.
- **International clubs:** The UNESCO Club and friendship clubs of different countries can be established, like the India-Nepal Club, India-Sri Lanka Club, India-America Friendship Club, etc., in order to cultivate international understanding. These can be used to gain more knowledge about other countries.
- **Face-to-face contact:** Direct contact is a very important tool to cultivate international understanding. It has been proven by psychological and social researches that when different people come into contact with each other, they work for the attainment of common goals and close relations are developed among them. It also eradicates false propaganda and rigid principles of the people. Different resources can be used for increasing this type of contact among different nations, some of which are as follows:
- **Exchange of teachers and students at international level:** An important measure to establish direct contact among different nations is the exchange of teachers and students. When teachers and students of one country visit another, they exchange their cultures and knowledge. These teachers and students will act as the representatives of their respective countries.
- **International camps:** International camps should be held for the cultivation of international understanding, where students and teachers of different countries live and work together. These international camps can help break away cultural and political differences.
- **Study tours:** Study tours are very important in order to establish direct contact among people. Under this project, the teachers and students of one country visit another and establish personal contact with the people, exchange their views with them, observe their educational institutions, and study the educational system and educational problems, which helps in the cultivation of international understanding.

International Understanding and Methods of Teaching

It would be useful to apply the following methods of teaching in order to cultivate international understanding and achieve the specified educational goals:

- **Story telling method:** Interest for the international world can be created in students by telling stories from different countries. This method should be used at the primary level.
- **Project method:** The project method is used to encourage thinking and working in cooperation. Through this method, students can be encouraged to work on projects relating to the lifestyle and other aspects of life of people from different countries.
- **Lecture method:** This method is used to explain a topic. A well-prepared lecture is helpful to motivate students and develop their logic. A teacher can use this method to acquaint students with the international world.

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Check Your Progress

7. List the various obstructions or barriers in the way of international understanding.
8. Name the voluntary organizations that help in organizing exchange programmes for teachers.
9. Name the projects that may be explored for the purpose of international exchange of students.
10. List the types of activities that should be organized by teachers to develop an international outlook in students.

- **Discussion method:** In this method, a student takes active part in the learning process. A teacher can use this method to cultivate students' interest in topics of international importance.
- **Self-study method:** This method is quite useful at the higher level. Therefore, students' interest should be cultivated in topics and problems of international importance in order to motivate them for self-study.

The UNESCO is an important institution of the United Nations. The objective of this institution is to cultivate the spirit of cooperation among different nations of the world through education, science and culture. This institution is making efforts to prevent wars by change of hearts. This institution works to eradicate hatred, enmity and narrowness in order to create international cooperation, love and trust.

The UNESCO programmes have been divided into eight parts:

- **Education:** This is the chief function of the UNESCO. With the expansion and progress of education, it also educates students on how to live in the world community. The technique it has applied in the field of education is called original education. In this technique, provision is made for educating the illiterates as well as education for preservation of health, agriculture and home science.
- **Natural science:** It acquaints people with the knowledge accruing from different experiences and researches. It develops desert research centres and assists in their expansion. It provides all possible assistance in imparting science education.
- **Social science:** In order to eradicate international tensions and ill-feelings, it holds seminars and conferences and undertakes research on problems related to social science.
- **Cultural work:** It publishes different types of literature for cultural development of individuals and arranges musicals, theatre performances, etc.
- **Exchange of scholars:** In this technique, different international seminars are held in which the scholars of one country are sent to another so that their knowledge can be utilized.
- **Collective education:** The aim of UNESCO is to work for collective education and its expansion. Education is imparted through films, radio, newspapers and periodicals.
- **Rehabilitation:** This organization assists in rehabilitating refugees of different countries.
- **Legal assistance:** Under this programme, this institution provides adequate advice to different countries on different issues.

The goals and functions of the UNESCO are quite advanced and centred on humanity. The world can never hope for peace only through politicians. History is witness that preparations for war have been made in the name of peace. It is necessary that a change of heart takes place for eradication of wars and permanent peace. The spirit of world citizenship should be cultivated in place of narrow nationalism. Selfish interests can be eradicated by education along with the emotions of jealousy, hatred, enmity, competition and violence. There is a need to implement those principles which have been propounded for international cooperation and goodwill for achieving world peace.

9.6 SUMMARY

- Modernization refers to the changes in material elements and also the belief of the people, their values and way of life as a whole. The process of modernization aims at bringing about desirable changes in the social structure, values and the social norms.
- Due to the rapid change, the centres of learning should be alert in order to keep abreast of significant changes that are taking place in the society. There is a need for adopting a dynamic policy in the field of education. The system of education which does not take into account this aspect, becomes out-of-date and out-of-tune and stands in the way of development, both in quality and quantity.
- The spirit of love, cooperation and friendship among all nations of the world and their people is called international understanding. International understanding is a synonym for world brotherhood or world citizenship. International understanding is opposed to extremist nationalism. This spirit expands an individual's outlook. It cultivates the spirit of 'live and let live'. Its main objective is the welfare of the human race.
- Teaching for world understanding should pervade the whole educational programme, which includes the attitudes of the staff members, curricular and co-curricular activities, and experiences of the school. We have to fashion and plan our teaching and learning process in such a way that children can grow with a sense of world-mindedness.
- Social changes are the changes that occur in various components of socialization discussed above for whatever reasons and circumstances. We have also observed that social change is the most operative aspect of the society.
- Several efforts have been made since ancient times to establish peace and cooperation in the world. Indians have been educated in the concept of *Vasudhaiva Kutumbakam* or world brotherhood, which means accepting the whole world as your own family.
- There are various obstructions and barriers in the way of international understanding, which include physical barriers, political barriers, economic barriers, religious barriers, linguistic barriers, psychological barriers and educational barriers.
- To make the society worth living, education and society should be closely associated with each other. They should depend on each other for their growth and development. If we neglect this contact, education would remain ineffective and artificial and cannot be used as an instrument of social progress.
- Teaching for world understanding should pervade the whole educational programme, which includes the attitudes of the staff members, curricular and co-curricular activities, and experiences of the school. We have to fashion and plan our teaching and learning process in such a way that children can grow with a sense of world-mindedness.
- Different kinds of exchanges between schools in India and other countries could be profitably undertaken as an aid to promote international understanding.

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- The Indian National Commission and the Ministry of Education should expand the programmes of awarding fellowships to Indian teachers, enabling them to study and work in schools in other countries.
- UNESCO is one of the specialized agencies of the United Nations. Its operation and structure are determined by its Constitution, which was drawn by the members of the London Conference in 1945.
- UNESCO has to maintain, increase and diffuse knowledge by various means, including the conservation of world inheritance of learning and culture as well as the encouragement of cooperation between countries in all branches of intellectual activity.
- For the cultivation of this international understanding, we have to accept the fact that all of us are citizens of the world and education is the only agency to realize this. We have to assume that the manner in which our schools can help in the cultivation of international understanding cannot be achieved by any other agency.
- There is a need to bring about change in the school subjects being taught under the curriculum. This change or amendment should be in keeping with international understanding. The subjects taught to students have been constructed from a national viewpoint and internationalism has been neglected.
- Co-curricular activities can prove to be very helpful in the cultivation of international understanding.

9.7 KEY TERMS

- **Social changes:** These are the changes that occur in various components of socialization for circumstantial and fundamental reasons and circumstances.
- **Internationalism:** Internationalism is a feeling that the individual is not only a member of his own state, but a citizen of the world.
- **Modernization:** It is a process of change from traditional and quasi-traditional order to certain desired types of technology.

9.8 ANSWERS TO ‘CHECK YOUR PROGRESS’

1. Modernization refers to the changes in material elements and also the belief of the people, their values and way of life as a whole. The process of modernization aims at bringing about desirable changes in the social structure, values and the social norms.
2. Education in a modern society is no longer concerned mainly with the imparting of knowledge and the preparation of a finished product, but with the awakening of curiosity, the development of proper interest, attitudes and values and the building up of such essential skills as independent study and capacity to think and judge for ourselves, without which it is not possible to become a responsible member of a democratic society.
3. The Food Corporation was set up to procure food grains from surplus production areas and distribute it in the areas with shortages.

4. In 1948, AICTE was constituted by the Government of India as an advisory body for all matters associated with technical education
5. National integration is the awareness of a common identity amongst the citizens of a country. It means that though we belong to different castes, religions and regions and speak different languages we recognize the fact that we are all one.
6. Some of the ways that would help in national integration are:
 - Celebration of national days
 - Celebration of birthday's of great men
 - Celebrating cultural festivals
 - Celebration of festivals
7. The various obstructions or barriers in the way of international understanding are as follows:
 - Physical barriers
 - Political barriers
 - Economic barriers
 - Religious barriers
 - Linguistic barriers
 - Psychological barriers
 - Educational barriers
8. The voluntary organizations that help in organizing exchange programmes for teachers are the New Education Fellowship, Rotary Club, Lions Club, Experiment in International Living, World Confederation of Organizations of Teaching Profession, Indian Council for Cultural Relations, etc.
9. The projects that may be explored for the purpose of international exchange of students are the Scout Jamborees and the International Voluntary Work Camp Movement.
10. The types of activities that should be organized by teachers to develop an international outlook in students are:
 - (i) Organization of UN societies and international clubs
 - (ii) Celebration of social days for heroes of peace and great men of all nations
 - (iii) Showing dramas depicting the horrors of war
 - (iv) Encouraging students to collect stamps and develop pen friendships between children of different countries
 - (v) Organizing debates, lectures and discussions on the United Nations Organization

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9.9 QUESTIONS AND EXERCISES

Short-Answer Questions

1. What is modernization?
2. How has modernization helped in educational progress?

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3. What is national integration? State some activities that would help in national integration.
4. How has agriculture improved due to education?
5. What is the objective of the UNESCO?
6. Which methods of teaching help in cultivating international understanding and achieve the specified educational goals?
7. How can teachers contribute towards international understanding?
8. What is the meaning of international understanding?

Long-Answer Questions

1. Modernization refers to the changes in material elements and also the belief of the people, their values and way of life as a whole. Explain.
2. Discuss the concept of internationalism in Indian education.
3. Write a note on the agricultural and technological changes in India since Independence.
4. Explain the different methods for creating world understanding.
5. Discuss the importance of exchange programmes between institutions within India and other countries for promoting international understanding.
6. Discuss the role of education in international understanding.

9.10 FURTHER READING

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