UNIT 1 : MEANING AND NATURE OF EDUCATIONAL TECHNOLOGY

UNIT STRUCTURE

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- 1.3.2 Objectives of Educational Technology
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1.1 LEARNING OBJECTIVES

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

- explain the meaning of educational technology
- define the educational technology
- identify the objectives, types and nature of educational technology
- discuss the scope of educational technology.

1.2 INTRODUCTION

This unit introduces you to some basic concepts of Educational Technology which include the meaning of educational technology, definitions of educational technology, and its nature and scope. With recent development and advancement of technology its application in education is increasing day by day and opens a new area for educators, teachers and students. Technology is being successfully utilised in resolving many problems of

education. Hence, it has become common to extend its successful application to the teaching-learning situation. The most distinctive feature of modern society is science based technology. Science based technology has its impact on the social and cultural life of the people which can be described as modernisation. This modernisation affects the educational system also. There has been a great explosion of knowledge during the last few decades and the main task of education in modern society is to keep pace with this advance in knowledge which is not possible without the help of technology. Educational technology is application of technology in the field of education.

1.3 MEANING AND DEFINITIONS OF EDUCATIONAL TECHNOLOGY

In order to have a better understanding of 'Educational Technology' it is important to understand the term 'Education' and 'Technology' and then the term 'Educational Technology' as such:

Derivative meaning of Education: The word education is derived from a Latin word 'Educare' which means 'To draw out'. 'Education' aims at the all round development of an individual. It is the process of helping the child to adjust with the changing world, by acquring the knowledge and skills. Broadly speaking, education refers to any act or experience that has a formative effect on the personality of an individual.

Technology is the application of scientific knowledge for practical purposes. The word 'Technology' is derived from the Greek word 'Technic', meaning art or skill and 'logia' meaning 'science' or study. Thus, Technology is the science of study of an art or skill. It is the application of science to the needs of an individual and the society.

Now the question arises as to what is educational technology? Educational technology implies the use of scientific and technological methods and concepts in the teaching learning process. The main objective of the use of educational technology is to improve the learning.

Education technology is a branch of technology. It is a system in education in which machines, materials, media, men and methods (5 M's) are inter-related to work together for the fulfilment of specific educational objectives.

Definitions of Educational Technology: Educational Technology has been defined in different ways. Let us go into some of these definitions.

- The National Council for Educational Technology, U.K. (1967), defines it in this way: "Educational Technology is the development application and evaluation of systems, techniques and aids to improve the process of human learning."
- According to B. C. Mathis, "Educational Technology refers to the development of a set of systematic methods, practical knowledge for designing, operating and testing in schools."
- I. K. Davis (1971) defines it thus, "Educational Technology is concerned with the problem of education and training and is characterised by a disciplined and systematic approach to the organisation of resources for learning."
- In the same way Shiv Mitra (1968) states, "Educational technology can be conceived as a science of techniques and methods by which educational goals could be realized."

By analysing the above definitions we can derive the following points:

- The main thurst of educational technology is to develop techniques and aids to improve the teaching learning process.
- It is a systematic approach to develop practical knowledge.
- It gives importance on organisation of resources for learning.
- It is a science of technique and methods by which educational goals could be realised.

Thus, educational technology is that branch of technology which deals with the application of scientific principles to education and which lays stress on the development of methods and techniques of effective teaching-learning.



LET US KNOW

- Educational Technology is concerned primarily with the design and use of messages which control the learning process.

- Educational technology is the development, application and evaluation of systems, techniques and aids to improve the process of human learning.
- Educational technology deals with the application of many fields of science to the educational needs of the individual as well as of society.

1.3.1 Nature and Characteristics of Educational Technology

Now we are familiar with the meaning of educational technology. Let us discusss its nature and characteristics.

By nature educational technology gives importance on developing new techniques, new aids and new systems for improving the process of human learning.It includes both teaching and learning technology. At the initial stage educational technology was linked with the use of audio-visual aids like models, charts, maps, specimen and other concrete material only. But with the development of electronics brought about a new era of hardware and software technology. The projector, tape recorder, radio and television etc have changed the educational scenerio. But educational technology did not confined itself to the use of audio-visual aids or media only. Efforts of Skinner, Gagne and many others gave a new direction to educational technology by giving improtance on the psychological principles of learning.

In this way emphasis is taken away from individual media and the focus is given more on a problem oriented approach consisting of learning experiences where media is selected on the basis of their appropriateness for the achievement of educational objectives. We can say that educational technology is a communication process between the teacher and the taught resulting from the application of scientific methods to the behavioural science of teaching and learning. Educational technology as it exists today is a comparatively new idea, developed as a result of the integration of technological devices

with the newly explored psychological principles of learning, teaching, behavioural modification, content analysis, education etc. Our concept of the nature of educational technology will be more clear if we go through the **characteristics of educational technology,** which are given below:

- Educational technology is the application of scientific principles to education.
- It gives stress on the development of methods and techniques for effective teaching learning.
- Educational technology helps the teacher in organising the learning.
- It makes use of ***pertinent*** scientific and technological methods and concepts developed in psychology, sociology, communication and other related fields.
- It helps in breaking the monotony of teaching by giving importance on learner-centred approach instead of teacher-centred approach.
- Both hardware and software are necessary components of educational technology. Therefore, educational technology is considered as an integration of hardware and software.
- Educational technology includes both electronic and non-electronic teaching aids for instruction.
- It gives importance on individualising instruction, that is, making learning a process of self-activity or self instruction. Educational technology emphasizes on desigining and measuring instruments for testing the outcomes of learnings.
- It facilitates learning by controlling environment, media and methods.
- In true sense, it is a science of techniques for effective use in the field of education.



Pertinent: relevant; appropriate to a particular situation.

1.3.2 Objectives of Educational Technology

The main objectives of educational technology are:

- **To make teaching learning more scientific:** Educational technology has made teaching learning more scientific by

introducing hardware and software technology in education. It helps the teacher to manage the instructional environment for learning with whatever hardware and software are available to him. Through technological devices he can clarify, establish, correlate and co-ordinate accurate concepts to make learning more interesting and effective.

- **To bring education nearer to individual:** Due to population explosion, formal mode of education has become insufficient for providing education. By using radio, television, film, tape recorder etc., it is possible to provide education anywhere in the country by learned and efficient teachers.
- **To provide continuing education**: Modern life demands that every individual should remain a student throughout life and updates his knowledge. As such, continuing education has acquired tremendous significance in the present situation. One of the main objectives of educational technology is to provide continuing education by using new technologies of communication so that people can keep themselves abreast with the latest knowledge according to their own time, place and pace of learning.
- **To transform teacher-centred education to learner-centred education:** Another objective of educational technology is to make the educational process more learner oriented than teacher-oriented. Educational technologists have developed a large number of individualised teaching-learning materials in the form of printed materials, audio-tapes, slides, models, computer programmes etc. based on the psychology of learning. Students can also learn by using newer technology like multichannel cable, interactive video, satellite TV system and video recording where teacher's role may be that of a facilitator and supervisor of learning rather than that of a prime conveyor of learning.
- **To improve the quality of teaching:** The most important objective of educational technology is to improve the quality of teaching and learning, specially, learning through audio and visual

or both audio-visual media stirs the imagination, thinking process and reasoning power of the students. It breaks the monotony of the traditional classroom situation and provides different tools in the hands of the teacher to stimulate learning.

- **To make literacy mission successful:** Curing illiteracy is the immediate problem in developing countries. To get rid of this problem we need a large number of teachers and yet this can not be a complete solution for the ever increasing problem of illiteracy. Technology provides the necessary answer to these problems. The teacher can deal with larger and larger group of students with the help of mass media. Audio-visual aids like radio and television have made education accessible to people living in remote areas and also in spreading mass education.



CHECK YOUR PROGRESS

Q.1: Define the term "Educational Technology".

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Q.2: What are the major objectives of educational technology?

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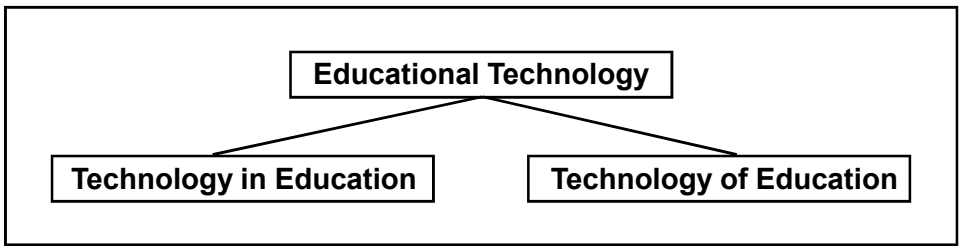
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1.3.3 Aspects of Educational Technology

Educational technology is neither technology in education nor technology of education but it includes both to make the whole teaching learning process more meaningful for the learners as well as for the teachers. The concept of educational technology has two aspects–

- Technology in education.
- Technology of education.

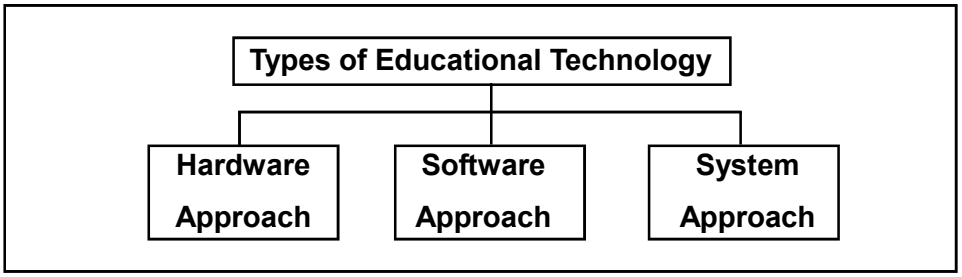


- ***Technology in education*** refers to the use of both hardware and software. Hardware refers to the technical equipment for transmitting information, i.e., television, tape recorder, overhead projector, computer, video casette recorder, radio etc. Software, on the other hand, is associated with the learning materials which are presented to the learners with the help of hardware. For example, computer programmes, transparencies, television or radio programmes etc.
- ***Technology of education*** refers to the application of psychological principles of learning in education. It is concerned with improving the effectiveness of learning by applying certain psychological principles. This led to the emergence of software approach to instruction. Thus, educational technology is an integration of both hardware and software.

1.3.4 Types of Educational Technology

By now you have developed a fair understanding of the basic meaning and concept of educational technology. Let us discuss the different types of educational technology. **A. A. Lumsdein (1964)**

has suggested that there may be three educational technologies as shown below:



Now we have to look into these three types seperately–

- **Hardware Approach:** The Hardware approach is based on the application of engineering principles for developing electro-mechanical equipment like Radio and Television sets, tape recorders, film, slide and over head projectors (OHP), teaching machine, computers etc. Hardware approach is based on the application of physical science to the education and training system which mechanises the process of techning. The mechanisation is being introduced in preservation, transmissions and advancement of human knowledge. The teacher can deal with a large number of students and the cost per student has been reduced by the hardware approach to education.
- **Educational Technology or Software Approach:** It refers to the application of teaching-learning principles to the direct and deliberately shaping of behaviour. Its origin lies in the application of behavioural science to the problems of learning and motivation. This view of educational technology is closely associated with the modern theory of Instruction, theory of teacher behaviour and principles of programmed learning.The software technology is often referred to as instructional technology, teaching technology and behavioural technology.

Both Hardware and Software are like two sides of the same coin and both go hand in hand to maximise the effect of the teaching learning process. In the hardware approach, we are more concerned with the use of audio-visual aids material and

sophisticated instruments, and mass-media to assist the teacher and the learner to achieve better results. But in the software approach we try to make use of psychology of learning for the production and utilization of software techniques and materials in terms of learning materials, teaching-learning strategies, tools of evaluation and other devices to soften and smoothen the task of teaching-learning.

- **System Approach:** The latest concept of educational technology is influenced by the concept of system approach. It refers to the analysis and development of systems and is considered to be the most modern and comprehensive view. System approach is based on the principle of organisation of the different parts of any system showing the relationship between the parts and the whole. System approach helps in designing a complex system by the efficient use or resources in the form of men, money, materials and machines to achieve the desired goal in the most efficient manner.For example, educational system is composed of teacher, student, building, library, administration, laboratory, teaching aids etc. All these are linked with one another so that the goals of a system are achieved.



LET US KNOW

- The major objectives of educational technology in terms of specific classroom teaching area are: (i) to analyse the characteristics of a learner, (ii) to organise the content in logical sequence etc.
- The concept of educational technology has two aspects such as– technology in education and technology of education.
- The hardware technology of education implies the use of mechanical materials and equipment to education.
- Software teaching technology is directly related to the Psychology of learning which comprises behavioural changes resulting from experiences.

- System approach is based on the principle of organisation of different parts of any system showing the relationship between the parts and the whole.



CHECK YOUR PROGRESS

Q.3: What is hardware approach to educational technology?

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Q.4: What is software approach to educational technology?

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Q.5: What is system approach to educational technology?

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ACTIVITY 1.1

In your opinion, how does the hardware and software approach to educational technology help you to gain knowledge even at your door step.

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1.3.5 Functions of Educational Technology

Important functions of educational technology may be listed as under:

- Indentification of the educational goals and objectives.
- Analysis of the characteristics of learners to design the instructional procedure accordingly.
- Selection and organisation of content or subject matter to be learned.
- Developing suitable teaching-learning material.
- Developing and selecting appropriate audio-visual aids.
- Preparing teachers in the use of new technology of teaching.

1.4 SCOPE OF EDUCATIONAL TECHNOLOGY

Let us discuss the scope of educational technology.

In fact, the scope of educational technology is very wide in the sense that it embraces all the branches of education. There is hardly any branch of education that has not been touched by the development of technology. The very purpose of educational technology is to facilitate and improve the quality of human learning. It is a new area in the discipline of education which has opened up great possibilities for imparting education more effectively with the help of equipment and materials. Thus, educational technology can assist in the reorganisation and redefinition of educational experiences. The scope of technology includes the following areas:

- **Identifying aims and objectives of teaching:** Educational technology is the body of knowledge resulting from the application of the science of teaching and learning. It helps the teachers to identify the aims and objectives of teaching and to use technological innovations in the field of teaching learning. The use of technical equipment comes under the scope of educational technology.
- **Planning and organisation of learning environment:** Traditionally education was conceived as a process of transmission of factual knowledge and the teacher adopted an authoritarian attitude. But

modern education is considered as a process of interaction between the child and his environment. Activity and experience have become the key words in teaching. The teacher has to manage the instructional enviornment, identify the students' problems and direct the use of available resources. Educational technology helps the teacher in structuring and managing the environment for learning whatever hardware and software are available to him.

- **Exploring principles and maxims of teaching:** Educational technology has developed different principles and maxims of teaching. These are useful in making learning experiences practical and, therefore, better related to life's goals. It takes into account motivation, sensation,perception, attention, evaluation etc. Besides educational technology can be used effectively for formal, informal, non-formal systems of education at any level.
- **Deciding tactics and strategies:** Educational technology is constantly searching for developing new tactics and strategies to make learning more effective and meaningful.
- **Developing learning media:** We know that educational technology implies a systematic approach to learning. It gives importance to the continuous renewal of curriculum, the trying out and use of new methods and materials in view of changing circumstances. As such, the scope of educational technology includes the development of all technological media and materials which are useful in the instructional process. They range from the simple varieties of aids to teachers, to developing and presenting the lessons more effectively in the traditional classrooms, and to changing the classroom teaching structure and situation by using sophisticated machine and mechanism.
- **System approach to education:** This implies a systematic and scientific approach to teaching-learning process in order to increase its effectiveness. A system is the organisation of an orderly whole, showing interrelationship between different parts and between the parts and the whole. The educational system is also an organised

whole composed of the management, teachers, building, library, teaching aid etc. These are all interrelated to one another to achieve the insitutional goal. Educational technology is concerned with the application of system approach to the study of multidimensional problem of education like educational planning and organisation, psychology of learning, curriculum development and course design, production of teaching-learning material, use of audio-visual aids, dissemination of information, management of human and non-human material resources, effectiveness of media in education and evaluation.

From the above discussion, we can say that there is a vast scope of educational technology for its effective use in the field of teaching-learning process.



LET US KNOW

- The scope of educational technology is very wide.
- Educational technology plays a significant role in the development of teaching, learning and training.



CHECK YOUR PROGRESS

Q.6: Mention the characteristics of educational technology.

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Q.7: Write about the scope of educational technology.

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1.5 LET US SUM UP

- Educational technology means the sum total of all educational facilities, media, methods and techniques for optimizing learning.
- Educational technology can be conceived as a science of techniques and methods by which educational goals can be realized. The term educational technology has been defined by several persons. Among them the definition made by B. C. Mathis, I. K. Davis, Dr. B. P. Lulla are significant.
- The major objectives of educational technology in terms of specific classroom teaching are: to determine the goals and formulate the objectives in behavioural term, to analyse the characteristics of the learner etc.
- The concept of educational technology has two aspects: Technology in education, technology of education.
- There are different types of educational technology, such as– hardware approach, software approach and system approach.
- The hardware approach is based on the application of engineering principles for developing electro mechanical equipment like radio and television sets, tape recorder etc.
- Software approach of educational technology is based on the use of the principle of psychology for behaviour modification purpose.
- System approach is based on the principle of organisation of different parts of any system showing the relationship between the parts and the whole.
- The scope of educational technology is very wide.



1.6 FURTHER READING

1) Aggarwal, J. C. (1997). *Essentials of Educational Technology: Teaching-Learning Innovations in Education*. New Delhi: Vikash Publishing House Pvt. Ltd.

2) Mangal, S. K. *Foundations of Educational Technology*. Ludhiana: Tandon Publications.
3) Rao, Usha (2005). *Educational Technology*. Delhi: Isha Book.
4) Sampath, K. etal: *Introduction of Educational Technology*.



1.7 ANSWER TO CHECK YOUR PROGRESS

Ans. to Q. No. 1: In order to have a better understanding of 'Educational Technology' it is important to understand the terms 'Education' and 'Technology'. The word 'Education' is derived from a Latin Word 'Educare' which means to draw out. Education aims at the all round development of the individual. Technology is a science of techniques and methods of getting things done. It is the application of science to the needs of an individual and the society. After knowing these two terms it will be easiest to understand what 'Educational Technology is. It is a branch of study where the results of physical sciences and social sciences are applied to increase the efficiency of education.

Ans. to Q. No. 2: The major objectives of educational technology in terms of specific classroom teaching are:

- To determine the goals and formulate the objectives in behavioural terms.
- To analyse the characteristics of the learner.
- To evaluate the learner's performance in terms of achieving educational objectives.

Ans. to Q. No. 3: The hardware approach is based on the application of engineering principle for developing electro-mechanical equipment like radio and television sets, tape-recorders, film, slide and overhead projectors and computer etc.

Ans. to Q. No. 4: Software approach refers to the application of teaching - learning principles to the direct and deliberate shaping of behaviour. It is the application of scientific knowledge in learning and conditions

of learning to improve the effectiveness and efficiency of learning and training.

Ans. to Q. No. 5: System approach is based on the principle of organisation of different parts of any system showing the relationship between the parts and the whole. System approach helps in designing a complex system by the efficient use of resources in the form of men, money, materials and machines to achieve the desired goal in the most efficient manner.

Ans. to Q. No. 6: The characteristics of educational technology are as follows–

- Educational technology is the application of scientific principles to education.
- Educational technology includes input, output and process aspect of education.
- Educational technology is an important medium of communication etc.

Ans. to Q. No. 7: The scope of educational technology is very wide. It includes hardware, software and system approach in various educational operations. The scope of educational technology is also to clarify its subject matter. Its subject matter includes teaching-learning process, teaching models, learning theories etc.



1.8 MODEL QUESTIONS

A) Very Short Questions (Answer each question in about 50 words)

Q.1: What do you mean by educational technology?

Q.2: How do you define educational technology?

Q.3: What is the difference between hardware and software?

Q.4: What are the types of educational technology?

Q.5: Explain three most important characteristics of educational technology.

B) Short Questions (Answer each question in about 150 words)

Q.1: Explain the concept of educational technology.Why is educational technology imporatnt in our day to day life?

Q.2: What are the objectives of educational technology? Explain.

Q.3: What are the differences between technology in education and technology of education? Explain.

Q.4: What is meant by hardware approach to educational technology?

Q.5: What is known as soft approach to educational technology? Gove your views.

C) Long Questions (Answer each question in about 300-500 words)

Q.1: Discuss the significance of hardware, software and system approach to educational technology.

Q.2: Explain the nature of educational technology. What are the functions of educational technology?

Q.3: Discuss the scope of educational technology.

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UNIT 2: MAXIMS AND PRINCIPLES OF TEACHING

UNIT STRUCTURE

2.1 Learning Objectives

2.2 Introduction

2.3 Meaning of Maxims of Teaching

2.3.1 Steps of Maxims of Teaching

2.4 Principle of Teaching

2.4.1 Psychological Principle of Teaching

2.4.2 General Principle of Teaching

2.5 Let Us Sum Up

2.6 Further Reading

2.7 Answers to Check Your Progress

2.8 Model Questions

2.1 LEARNING OBJECTIVES

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

- explain the meaning of maxims of teaching
- identify the methodical procedure of maxims
- describe the general principles of teaching.

2.2 INTRODUCTION

After having discussion on concept of Educational Technology in the unit 1, let us discuss another important topic, that is, maxims and principles of teaching. Teaching is a complex process. It is considered an art as it is concerned with the talent and creativity of the teacher but it is also a science as it involves various teaching procedures and skills etc. To perform the job of teaching efficiently it is important to understand the maxims and the principles of the teaching process.

In this connection the method of teaching holds an important role. A teacher must learn how to teach before he/she takes up this profession.

Before beginning any lesson, a teacher must be sure of what he/she is going to do and how she/he is going to do it. A definite plan of work is a great help in securing thoroughness and economy of effort on the part of the teacher.

2.3 SIGNIFICANCE OF MAXIMS OF TEACHING

The maxims of teaching are very helpful in obtaining the active involvement and participation of the learners in the teaching learning process. They quicken the interest of the learners and motivate them to learn. They make learning effective, inspirational, interesting and meaningful. They keep the students attentive to the teaching-learning process. A good teacher should be quite familiar with them. Now let us proceed to discuss the steps of maxims of teaching.

2.3.1 Steps of Maxims of Teaching

- **From known to unknown:** According to these maxims, previous knowledge of the pupils should form the basis of the teacher knowledge. The teacher should link the knowledge that the child possesses with the new knowledge which is unknown. For this he should find out what is already known to the students by putting questions on the subject matter and then the teacher should start teaching the new knowledge in a linked manner. Thus, the teacher is to proceed step by step to connect the new matter to the old one. The child's interest is aroused when he is able to understand the relationship between the known and the unknown.
- **From simple to complex:** 'Simple' have means the ideas which the child can understand easily and the 'complex' is that, the understanding of which is difficult for the pupil. The maxim from simple to complex indicates that pupils must first be acquainted with simple matter and then he should progress towards complex matter. Whether the, matter is simple or complex should be decided from the puipls point of view and not from the tecaher's point of view. When the children proceed from simple to complex

they become motivated to learn and take interest in the lesson. For example, in a lesson of nature study a child will understand the concept of a flower first and thereafter its various parts. Different types of flower should be shown and the children should be asked to know their colours and fragnance.

In the same way, in a Geographical lesson, the teacher will take up a general study of a region first and then later on a detailed and specific study.

- **From concrete to abstract:** Due to limited mental development, the child is incapable of understanding the abstract and it is through education that the understanding of abstract is developed in him. But the child is capable of understanding the concrete. Therefore, in teaching, the teacher should begin with concrete matter and than slowly proceed towards abstract ideas. For example, the idea of 4 plus 3 being 7 is an abstract one which can be made simpler by the teacher by allowing the child to count 4 sticks and 3 sticks and to see for himself that they make 7 sticks. Thus vivid and clear illustration helps in understanding a new idea. Again, if a child is to be taught about non-violence then the teacher must first acquaint the child with the life and experiences of Mahatma Gandhi and Gautam Buddha. After learning through such concrete examples, the child will be in a position to grasp the idea of non-violence.
- **Proceed from particular to general:** This maxim is useful in developing the reasoning power in the students. According to this maxim, the child should be taken from particular towards general. Particular instances are simple, definite and concrete, whereas the general instances are likely to be complex and abstract. Therefore, on the basis of the particular example, the child should be encouraged to proceed towards generalisation. The rules of arithmetic, grammar, physical geography and almost of all sciences are based on the principle from particular instances to the general rules.

- **From indefinite to definite:** In the begining ideas of children are indifinite and very vague. These ideas are to be made definite, clear, precise and systematic. This is what we mean by this maxim. It is the duty of the teacher to lead them to definite concept. For example, the child's concept of a cow, bird or a human being is indefinite, because he does not know about the parts in detail. The function of a teacher is to bring clarity of ideas by using actual objectives, diagrams and pictures. Often the teacher remains indifferent about this maxim and lays more stress on memorisation. The teacher must understand that until there is clarity in the child's experiences his knowledge will remain incomplete.
- **From psychological to logical:** While teaching a child the teacher should keep in mind his developmental cycle. The education of the child should be in accordance with his interest, needs and mental make-up. A child has limited experiences and low reasoning power. Therefore, curriculum should be planned by keeping in view his stages of development. But difficulty arises here because if psychological sequence is followed logical sequence is ignored. The curriculum is by and large planned logically. We may conclude that psychological sequence should be given more importance in the teaching of a young child in comparison to logical sequence. In the later stages when the child attains maturity logical sequence should get importance.
- **From whole to parts:** This maxim is based on Gestalt psychology. The gestalt psychologists are of the view that fiirst we perceive the whole object or event and then we perceive the various parts of it. Thus, according to this maxim whatever is taught to the child should be taught as a whole and then it may be divided into different parts. Language study should not begin with words and their grammatical form but with sentence expresssing some ideas. In science, first the general properties of metal should be given; later each metal may be discussed separately. In teaching geography the teacher may talk of the whole globe and then proceed to different continents.

- **From empirical to rational:** We know that the sense organs are the gateways of knowledge. The child gets sensory experiences through his sense and these experiences become the data for his knowledge. But many a time he cannot understand or interpret these experiences. It is the function of education to help the child in understanding these experiences. This function can be performed by following the maxim 'From empirical to rational'. For example, the child experiences that day and night follow each other. The teacher can explain the rationale of this experinece and encourage the students to understand this natural phenomenon. Young children often put questions as to what, why and how. By following this maxim the teacher should be able to satisfy their curiosity and keep the children actively interested in the topic which he is teaching.
- **From analysis to synthesis:** Analysis means dividing a problem into different parts and synthesis means grouping them into one complete whole. In tecahing, the subject matter may be broken into different units which should be done logically. After the units have been learnt by the child they should be synthesised into the whole matter. Thus, the child gets the knowledge of unified uints. For example, in teaching language the pupils begin with sentences expressing simple ideas. These sentences are analysed into subject, verb and object. Words are further analysed by classifying then into nouns, verbs etc. But full understanding comes only if the words are again arranged to make a sentence.
- **Follow inductive and deductive method:** In the inductive method the teacher start from a particular example or illustration to derive general rules. Teaching is based on previous knowledge of the child and the teacher has to put in more labour. He or she may require more teaching abilities and has to prepare his or her lessons with care so that it can lead the child towards generalisation on the basis of particular experineces. For example, in teaching geometry if the teacher has to teach the

child that the vertically opposite angles are equal to each other then he may ask the students to measure such angles in many examples and then lead them to the conclusion that in all such cases such angles are equal. Different subjects like science, grammar, geometery can be taught by following this method.

The deductive method, on the other hand, is the opposite of the inductive method and proceeds from general to particular. For example, ‘‘the farmers in India are very poor’’ is a general statement and it uses the deductive type of reasoning. After that the teacher may give several examples from which it will be evident that the farmers are poor. The deductive method is easier than the inductive method. When the students just memorise the general principle than his thinking and reasoning power may not develop. From this point of view inductive method is more scientific. However, the teacher must remember that both the methods are important. In the initial stage the teacher should use the inductive method but he must end with the deductive method. In fact, the deductive method is supplementary to the inductive method.



LET US KNOW

- Teaching is a complex process.
- Teaching is considered an art as well as a science.
- A definite plan of work is a great help in securing thoroughness and economy of effort.
- The maxims of teaching are very helpful in obtaining the active involvement of the learners in the teaching-learning process.
- Maxims of teaching make learning effective, interesting and meaningful.
- Important maxims of teaching are from analysis to synthesis, from concrete to abstract, from the known to the unknown, from simple to complex etc.



CHECK YOUR PROGRESS

Q.1: Write short notes on the following steps of maxims of teachings:

a) Simple to Complex

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b) Whole to parts

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c) Concrete to abstract

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ACTIVITY 2.1

Explain the maxims of methodical procedure with classroom illustrations.

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2.4 PRINCIPLE OF TEACHING

There are also certain principles of teaching emphasised by educators and psychologists which the teachers are expected to keep in mind for making their teaching effective and efficient.These principles are classified as psychological and general principles (Agarwal, J. C. 2005). However, this classification is very arbitrary and both types of principles overlap each other. Let us discuss the principles of teaching.

2.4.1 Psychological Principle of Teaching

The psychological principles of teaching are discussed below:

- **Principle of arousal of interest:** For effective teaching the arousal of interest of the child in learning is essential. Therefore, all the modern teaching methods have given importance to the interest factor in imparting instructions. It is the responsibility of the teacher to arouse interest of the child in the subject matter by adopting different techniques, such as, by questioning, by illustrations, by using audio-visual aids etc.
- **Principle of motivation:** This principle goes with the principle of interest arousal. Motivation is said to be the sin-qua-non of learning. In the absence of it the result of learning is bound to be inadequate. Motivation means creating conditions for psycho-physical readiness to learn. Whenever a child does not show interest in any activity then it can be aroused in him by motivating him. The teacher's duty is to create the necessary motivation in the learner for effective output of learning.
- **Principle of learning by doing:** Learning by doing means that whatever is taught to the child should not be done passively but should be taught by doing things. Children are active by nature and, therefore, the principle of learning by doing is applicable in both junior and senior classes. In junior classes this principle may be applied by encouraging physical activities and in higher classes instead of physical activities, mental activites should be encouraged more.

- **Principle of Individual differences**: No two individuals are alike. In a class there are average, backward, and gifted children. The teacher has to adjust his teaching in relation to all these types of children.
- **Principle of goal setting**: Learning is said to be purposive and goal oriented. Goal in learning only inspires one to undertake activity. Without a goal learning appears to be quite disorganised. Therefore, a definite goal must be set before providing instruction. This means that teaching must be purposeful or must have properly defined goals. Every subject, every topic has separate objective. The teacher must impart instruction keeping these in mind. A teacher's sucess in teaching can be assessed on the basis of to what extent he is able to achieve the goals of his teaching.
- **Principle of creativity:** Creativity refers to some originality to be found in a person. Originality is not restricted only to great persons in different fields. In fact, grains of creativity might be inherent in any individual in any sphere of activity. This principle envisages that every student possesses some elements of creativity which must be explored and developed. So, all the children should be given an opportunity. This opportunity will enable them to develop their constructive traits.
- **Principle of change and rest:** Psychological experiments in learning have shown that fatigue and tiredness, lack of attention and monotony in teaching and learning can be overcome by making appropriate provision for change and rest. Rest is the essential psycho-physical condition of learning. Rest can remove fatigue and boredom and revitalises the body and mind for fresh learning. While framing the time table, it is to be kept in mind that subject and activites should be arranged in such a way that the students do not experience boredom and fatigue.



LET US KNOW

- The principle of learning by doing may be applied at all stages in the school.
- Play is the chief activity of childhood.
- Motivation gets the learner ready for receiving new knowledge.
- While teaching the students, a teacher should recognize the individual differences in their capacity for learning a given subject.
- Definiteness of goals helps in planning, executing and evaluating every step, phase or act of the teaching learning process.
- Teaching is based on spontaneous activities of children.

2.4.2 General Principles of Teaching

The above mentioned principles are very important but besides these the teacher must also keep in mind some other principles which are given below:

- **Principle of linking learning with life:** While teaching any subject it is to be kept in mind that it should be related to situations in life. It means that teaching can never be performed in a vacuum. It must be related to social context. The child learns easily if the subject is linked with life and he does not take any interest in a subject which he cannot relate to meaning in life. Therefore, while teaching a subject, examples from everyday life should be given their due importance.
- **Principle of division:** It means that the curriculum should be divided in such units that the child may go on progressing from one step to the next in a sequential manner. After finishing one unit the child must automatically progress to the next. Therefore, in framing the curriculum proper sequencing of the units must receive adequate importance.
- **Principle of correlation:** The activities and subjects of the curriculum should be well correlated and integrated. Of course,

the pupils are to be provided selective experiences through various subjects and activities but these must be well integrated. The teacher should keep in mind that various subjects and activites have to serve the same ulitimate purpose- the achievement of the aims of education. Hence, the activities and subjects should not be put in water tight compartments but these should be inter-related and well integrated so as to develop the capacities of the child.

- **Principle of participation:** Principle of participation means active involvement of the learner in the teaching learning process. Traditional teaching was almost teacher-centred and there was very little scope for the involvement of the students. But modern teaching method emphasises that teaching must be learner-centred, i.e., the students must actively participate in all stages of teaching-learning.
- **Principle of recapitulation:** Review or recapitulation of the material learn is very important for the learner. The teacher should keep in mind that unless the child is asked to recapitulate the lesson he will forget it. Hence the teacher should give an opportunity to the child for reviewing and recapitulating the lesson.
- **Principle of reinforcement:** One of the most accepted modern principles of teaching is the principle of reinforcement. This principle is based on Skinner's theory of Operant conditioning. According to this principle, teacher should encourage the students in every step of learning. A word of recognition or praise from the teacher works as reinforcement in learning. It also encourages self-learning among the students and develops their natural desire to work and to be active.

In conclusion, we can say that with the broadening of the concept of educational technology to include all major techniques useful in the improvement of learning, coupled with the dynamic expansion of the field during the recent decades have revolutionised the process of teaching and learning at all levels. The effectiveness

of these methods and techniques ultimately hinges on the significant role of the teacher who alone can add the vital inter-personal dimensions that are essential for its efficient use.



CHECK YOUR PROGRESS

Q.2: Mention the general principle of teaching.

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Q.3: Explain the following principles:

a) Principle of learning by doing.

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b) Principle of Individual differences.

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ACTIVITY 2.2

Explain which principle of teaching you consider to be the most important and why?

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2.5 LET US SUM UP

- The method of teaching is one of the important things a teacher must learn before she takes up his profession.
- Before beginning any lesson a teacher must be sure of what he/she is going to do and how it is going to be done.
- The method of teaching to be followed depends upon the age of the pupils, the subject, and the topic of the lesson.
- Maxims of teaching make learning effective, inspirational, interesting and meaningful.
- Some of the important maxims of teaching are - from the known to the unknown; from simple to concrete; from easy to difficult; from the concrete to abstract; from psychological to logical etc.
- There are two types of principle of teaching such as psychological principles and general principles.
- Some of the important principles are– Principle of definite goal, Principle of individual differences, Principle of child centredness, Principle of linking with life, Principle of correlation, Principle of planning etc.



2.6 FURTHER READING

1) Aggarwal, J. C. (1996). *Principles Methods and Techniques of Teaching*. New Delhi: Vikash Publishing House Pvt. Ltd.

2) Chadha, D. S. (2004). *Classroom Teaching*. A Mittal and Management Publishing.

3) Chauhan, S. S. (1981). *Innovations in Teaching-Learning*. New Delhi: Vikash Publishing House Pvt. Ltd.



2.7 ANSWERS TO CHECK YOUR PROGRESS

Ans. to Q. No. 1: a) Simple ideas are easy and complex ideas are difficult. The simple task or topic must be taught first and the complex one can follow later on. In a lesson on nature study for instance, a child will understand the concept of a flower first and thereafter its various parts.

b) Whole is more meaningful to the child than the parts of the whole. It is a common misconception that parts of a situation are easier to understand for the students. Language study should not begun with words and their grammatical forms, but with sentences expressing some ideas. In science first metals should be dealt with in their general properties and later each metal may be discussed separately. They may talk of the whole globe and then proceed to different continents, while teaching geography.

c) Concepts should be taught to children in terms of concrete objects. For example, in the lower classes, addition and substraction should not be abstract mathematical processes. These can be done through concrete examples by doing addition or substraction with the help of sticks, balls etc. To teach Algebra, one should proceed with concrete numbers and then go to abstract symbols.

Ans. to Q. No. 2: Some of the important principles are–

- Principle of definite goal of objective.
- Principle of child centredness.
- Principle of individual difference.
- Principle linking with life.
- Principle of correlation.

- Principle of cooperation
- Principle of remedial teaching
- Principle of planning.
- Principle of flexibility.
- Principle of learning by doing.

Ans. to Q. No. 3: a) It was Froebel who emphasised the supreme importance of the principle learning by doing and demonstrated it as a successful method of teaching in the kindergarten system. Learning becomes easier, quicker and more effective if the child is physically as well as mentally active in the classroom. Teaching geography through drawing of maps and learning about civics through self-Govt. in the school are some of the examples of the application of this principle of varied subjects.

b) No two children are alike. Teaching to be effective must cater to individual differences of children. All the individual are not alike in intelligence, aptitude, temperament and home conditions. While teaching, a teacher should recognise individual differences in capacity for learning a given subject. He should never expect the same standard of achievement from all the pupils. His efforts should be directed at removing the cause of the trouble.



2.8 MODEL QUESTIONS

A) Short Questions (Answer each question in about 50 words)

Q.1: Explain the meaning of maxims.

Q.2: What is the significance of maxims of teaching?

Q.3: Why do you think that the principles of teaching is important for an effective teaching learning process?

Q.4: Explain the following maxims with classroom illustrations:

a) From analysis to synthesis

b) From concrete to abstract

c) From empirical to rational

d) From particular to general

B) Long Questions (Answer each question in aout 300-500 words)

Q.1: Discuss the various maxims of teaching giving the significance of each for a teacher.

Q.2: Elaborate on the maxims of methodical procedure with classroom illustrations.

Q.3: What are the general principles of teaching? How can a teacher utilise them during the course of teaching from time to time?

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UNIT 3: TEACHING STRATEGIES

UNIT STRUCTURE

3.1 Learning Objectives

3.2 Introduction

3.3 Meaning of Teaching Strategies

3.3.1 Nature of Teaching Strategies

3.3.2 Objectives of Teaching Strategies.

3.4 Types of Teaching Strategies

3.5 Let Us Sum Up

3.6 Further Reading

3.7 Answers to Check Your Progress

3.8 Model Questions

3.1 LEARNING OBJECTIVES

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

- identify the concept and meaning of teaching strategies
- explain the nature of teaching strategies
- illustrate the principles to be maintained in adopting new strategies
- describe the various types of teaching strategies etc.

3.2 INTRODUCTION

This unit introduces us to some basic concepts of teaching strategies, nature of teaching strategies, objectives and principles of teaching strategies, type of teaching strategies etc. The main focus of teaching is to bring about a desirable change in the behaviour of a learner. It is brought about by the teacher using teaching strategies to achieve his objectives. Teaching is an art and a skill to be learnt. It requires the knowledge of subject concepts, method, techniques and teaching aids to be used for making teaching interesting and effective. Teaching forms a relationship among the three focal points in education such as– the teacher, the student and the subject matter. In the progress of teaching both the teacher and the students are

active participants as the teacher is engaged in teaching and the students in learning. Teaching is also called the science. As a science it involves knowledge and as an art it requires skill or technique.

3.3 MEANING OF TEACHING STRATEGIES

The teaching strategy is a possible means to realise the learning objectives. It is a plan for the presentation of information. It includes methods and techniques. Teaching strategy refers to a pattern of teaching acts that serve to attain certain outcomes and to guard against others. The term 'strategy' was formerly used in battle or war but during the recent past the social scientist have also started using this term in social planning, human dynamics and teaching areas. The word strategy means determination of some policy by planning before presenting the contents with the help of which the teaching objectives are achieved. Teaching strategies are more comprehensive than the teaching methods. It includes all the aspects like-contents, task analysis, teaching objectives, pupils' interests, attitudes, capacities, abilities, needs, mental level etc.

Teaching strategy is the means to achieve the learning objectives. B. Stone and S. Morris have defined the term 'teaching strategy' comprehensively in the following manner– "Teaching strategy is a generalised plan for a lesson which includes structure, desired learner behaviour in terms of goals of instructions and an outline of planned ***tactics*** necessary to implement the strategy." Again, according to B. O. Smith, the term 'strategy' refers to pattern of acts that serve to attain certain outcomes and to guard against certain others.



Tactics: the art of conducting forces against the enemy.



LET US KNOW

- Teaching is both an art and science.
- Teaching is a process of presenting information for bringing desired change in learners behaviours.
- Teaching strategy is a plan for presentation of information.
- Teaching strategy includes methods and techniques.

3.3.1 Nature of Teaching Strategies

Most of the people generally consider teaching method or system and teaching strategy as one and the same. But it is not so. Teaching strategy forms a link between teaching input and learning output. Strategy involves technology whereas method is associated with ***pedagogy***. Teaching objectives are considered very important in teaching strategy, because selection of strategies depend on the objectives of teaching. Teaching strategies help in creating a complete learning situation.



Pedagogy: Profession or theory of teaching.

Teaching strategy use micro approach to teaching. There is a reason to have confusion between method and strategy. For example, the lecture is considered a teaching method but when the lecture is used to achieve some specific objective then it comes under teaching strategy. So, usually ,methods of teaching are used interchangeably. To understand the nature of teaching strategy it is necessary to understand the main principles of teaching strategy.

3.3.2 Principles to be maintained in adopting New Strategies

Following are the main principles of teaching strategies building:

- **Principle of selection:** The capabilities of the learners, availability of resources, entry behaviour, environment of the organisation, quality of teacher, objectives to be achieved and nature of curricular context should be taken into consideration when a particular teaching strategy is to be designed.
- **Principle of motivation:** Motivation drives the teacher to adopt an appropriate strategy in the teaching learning process. In framing and applying strategy, a teacher must keep in his mind how these strategies can be used to motivate the learner.
- **Principles of maxims of teaching:** While developing an appropriate approach and method in a learning situation, a

teacher has to take into consideration certain basic principles that guide the direction in which he/she should proceed, viz. from simple to complex, easy to difficult, known to unknown, concrete to abstract, particular to general, and the whole to parts.

- **Principle of variety:** Observation, collection of materials and information, demonstration and experimentation, projects, assignments, play way activities, educational games, educational excursions, creative writing, story telling etc. are the mode of teaching-learning process and it may require variety of activities of the learners and the teachers.
- **Principle of co-relation with environment:** The use of the physical and economic as well as socio-cultural environment have the impact for making learning more concrete and meaningful. The teacher should considered these elements into account when designing the curricular content.
- **Principle of feed back:** The principle of feedback in teaching - learning situation implies the success and failure of the learning programmes. Receiving regular feed back for the improvement of both teaching and learning should form an in built component of the teaching- learning strategy. A system of continuous evaluation plays an important role in providing regular feed back indicating the strength and weakness of the process.
- **Principle of individual differences:** An effective teaching-learning strategy, each child should get the opportunity to receive education according to his/her interest, capacity etc. Moreover, there should be remedial instructions for those who are slow learners. Here, the mental level of the learners should be kept in mind while designing the strategy.
- **Principle of child's all round development:** Activities such as– celebration of special days, cultural and recreational activities, community living activities etc. should be made an integral part of the school curriculum. Such activities help in the all round development of the child.



CHECK YOUR PROGRESS

Q.1: Fill in the blanks:

a) The method of teaching is based on .....

b) The strategy of teaching is determined on the basis of .....

c) Teaching strategy forms a link between teaching ..... and learning .....



ACTIVITY 3.1

As a teacher, what types of teaching strategies would you like to follow while teaching? Explain.

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3.3.3 Objectives of Teaching Strategies

After going through the meaning and nature of teaching strategy, following point that reveal clearly the objectives of teaching strategy–

- **Develop desire to do work:** The main objective of teaching strategies is to inculcate the love of work. The type of work depends on the situation, for example, in writing, in preparing a speech, in learning a school subject etc.The learner should be taught to derive joy out of the work. It is possible if the learner loves the work he/ she is supported to do.
- **Developing capacity for clear thinking:** The teaching strategy aims at developing the capacity for clear thinking which distinguishes every truly educated person.
- **Expanding the range of students' interest:** The strategies of teaching should aim at expanding the range of the students'

interest. "We should urge all schools to provide in the time table atleast one free period everyday in which student may pursue their favourite hobbies and creative acitivities individually or in groups preferably under the guidance of some interested teacher." –recommended the secondary education commission.

- **Varied opportunities of participation:** Teaching strategies aim at providing numerous opportunities of participation in freely accepted projects and activities in which discipline and co-operation are constantly in demand.
- **Opportunities for practical use of the acquired knowledge:** The strategies aim to use the acquired knowledge in their practical life. It should aim at transforming 'bookish schools' to 'works schools' or 'activities schools'.
- **Developing interest in the learner:** Teaching strategy aims at developing interest in the learner and training them in the efficient techniques of learning and study.
- **Train students in the art of study:** Teaching strategy should aim at training the students in the art of study. The use of reference books, library, laboratory, the dictionary etc. should be taught to the learners to expand their knowledge.
- **Counting individual difference:** To considering the individual difference while framing the strategy, is an important aim of teaching strategy.
- **Giving priority on co-operation and group effort:** Teaching strategy aims to keep a balance between individual work with co-operative or group effort, so that the genuine training of emotions, attitude and social development can take place for the all round development of the child. For this reason project work, group work etc. should be included in the curriculum.



LET US KNOW

- Teaching objectives are considered very important in teaching strategy.
- Teaching strategies and methods are used for the same meaning but they are quite different from one to another.
- Principles of building teaching strategies are–
  - Principle of selection
  - Principle of motivation
  - Principle of maxims of teaching
  - Principle of variety
  - Principle of co-relation with environment
  - Principle of feed back
  - Principle of individual difference etc.
- The main objectives of teaching strategies are to develop desire to do work, developing capacity for clear thinking, the varied opportunity of participation etc.



CHECK YOUR PROGRESS

Q.2: Teaching strategy use ..... to teaching. (fill in the blanks)

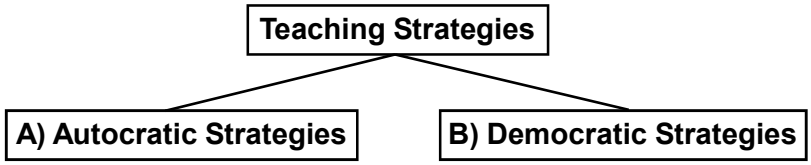
Q.3: Teaching strategy aims at ..... the students in the art of teaching. (fill in the blanks)

Q.4: Teaching strategies include narrow methods of instruction. (True/False)

3.4 TYPES OF TEACHING STRATEGIES

After knowing the various objectives of teaching strategies and its background, now we have to go through the various types of teaching strategies.

Teaching strategies can be classified under the following two heads–



A) Autocratic style: It involves the following strategies–

1) Lecture 2) Demonstration
3) Tutorials 4) Programmed Instruction.

The autocratic style of teaching is traditional. This style of teaching is content centred and the teacher remains more active and the students are passive listeners. The main emphasis in this style is on presentation. These strategies do not consider the student's abilities, interest and the personality of the learner. There is no freedom for the learner in the teaching process. A detailed description of such strategies is given here:

1) Lecture strategy: It is the oldest teaching method given by idealistic philosophy. It is still the most important teaching method in our schools. It is one of the autocratic teaching strategies. The lecture is often considered a communication strategy which has the following principles–

a) Principles of teaching:

I) The content is presented as a whole.
II) The main stress is on presentation.
III) The new knowledge is linked with the students' previous knowledge.

b) Limitations:

I) It lays more emphasis on teacher presentation and has no place for the participation of the students.
II) This strategy can be used in higher classes but it can not be easily used in elemetary classes.
III) Lectures should not be too lengthy.

c) Suggestions: The following precautions should be observed to use this strategy effectively–

I) The language of the lectures should be simple, easy and comprehensive.

II) The strategy should be used from secondary level to upward classes.

2) **Demonstration:** In demonstration method, verbal interaction is encouraged between the teacher and the pupil. The demonstration strategy is a traditional class room method which is used in technical schools and training colleges.

   a) **Principles:**

      I) It is mainly used as a teaching strategy for average and below average students.

      II) It is more useful for pupil-teachers to develop his own lessons in class room teaching.

   b) **Suggestions:** The following precautions should be taken in using the demonstration method and for demonstrating a lesson–

      I) An effective or skilled teacher should demonstrate the lessons.

      II) The lesson demonstration should be followed by discussions.

3) **Tutorials:** In the class room generally group teaching is emphasized so that a large group of learners could be educated at a low rate of expenditure. In group teaching a teacher can not give individual attention to each student. Lecture strategy is followed by tutorials because individual difficulties of the students are not addressed in a lecture. Tutorials are highly individualised type of teaching.

   a) **Principles:**

      I) It considers the individual differences.

      II) It provides educational guidance.

   b) **Suggestions:** The following precautions should be taken in using the tutorial method:

      I) The Teacher should have an objective dealing with the students.

      II) The tutorials groups should be formed on the basis of the student's difficulties in different subjects.

4) A) **Programmed Instruction as Teaching Strategy:** It is a new strategy of teaching. It is also known as 'individualised instructions'. The responses of the learner are controlled by the programmer.

a) **Characteristics:** The following are the main characteristic of programmed instructions strategy–

I) The student learns by doing; so he remains active.

II) The learner makes the minimum error in the learning process.

b) **Suggestions:** The following precautions should be observed while using this strategy–

I) It is more useful and effective for the secondary level student.

II) It should be employed for more conceptual work.

B) **Democratic or Permissive style of teaching strategies:** The modern teaching strategies which believe on child centric education are democratic teaching strategies. This strategy is mainly child centred and the content is largely determined by the pupil. Each pupil gets the opportunity for self expression and development.

Types of democratic style of teaching: The different types of democratic or permissive style teaching strategy are–

- Discussions
- Questions-answers strategy of teaching
- Project strategy
- Heuristic method
- Brain storming
- Independent studies
- Assignments
- Sensitivity training
- Computer assisted instructions
- Bloom's mastery learning strategy
- **Discussion:** In the discussion method there is an opportunity for interaction course between the teacher and the learner. Here the teacher motivates each and every pupil to think and participate on some problems by way of questioning.
- **Discovery:** This teaching strategy was developed by V. S. Burner. The main principles of this strategies are–

a) The learner remains active.

b) The student learns with understanding and insight.

- **Project strategy:** It is a new teaching strategy. The advocates of this strategy are of the opinion that a education should be related to life situations.The exponent of the project method is W. H. Kilpatrick. It involves following principles.

  I) The problem of study is related with life situation of the learner.

  II) Learners get freedom to work.

- **Heuristic:** The term 'Heuristic' has been borrowed from the word ''Heurica'' or ''Heurisco'' which means 'I discover' or 'investigate'. In this methods the teacher creates such an environment that it automatically creates problems before the pupil. The teacher presents suitable material in order to solve the problem.

- **Brain storming:** It is a democratic method. Here the teacher assigns some problems to all the pupil while using it. All the pupils think independently over the problem and then they express their views. The teacher writes their views on the black board.

- **Independent study:** Independent study is very much necessary for their self development. It is based on the principle of individual differences.

- **Assignments:** The assignments are also considered an important teaching strategy. It is most frequently used by teachers in schools for every subject. It is based on the following principles–

  a) Principle of exercise

  b) Principle of interest

  c) Principle of learning by doing

- **Sensitivity training:** It is difficult to define it as the discussion method because it employs a variety of techniques. It is based on following principles.

a) Developing the ability to appreciate how others react to one's own behaviour.

b) Increasing the ability to observe the state of relationship between others.

- **Computer assisted instruction:** Computer now influences the education process. It can be used effectively for imparting for more information and facts to the students accordingly to their abilities. The main thrust of this strategy is to achieve cognitive objectives.
- **Bloom's mastery learning strategy:** This strategy was developed by B. S. Bloom. With this strategy mastery of learning is developed. For example, an extra time is provided to a pupil weak in some subject. In this strategy the teaching content is divided into learning units. In every learning unit the instructional objectives are identified.



LET US KNOW

- Teaching strategies can be divided into two types such as– autocratic strategies and democratic strategies.
- The autocratic style of teaching strategies are traditional.
- The autocratic style strategies are content centred and the teacher remains more active and the students are passive listeners.
- Democratic teaching strategies are child centred.



CHECK YOUR PROGRESS

Q.5: Democratic style of teaching strategies are mainly child centred. (True/False)

Q.6: Mastery learning strategy of teaching is designed by (Choose the correct one)

a) J. S. Bruner b) B. S. Skinner c) B. S. Bloom

Q.7: Kilpatrick developed ..... strategy of teaching. (fill in the blanks)



3.5 LET US SUM UP

- In the process of teaching both teacher and student are active as teacher is teaching and the students are learning.
- Teaching strategy refers to a pattern of teaching acts that serves to attain certain outcome and to guard against others.
- Teaching strategy uses micro approach to teaching.
- The main objective of teaching strategies is to inculate in the pupil the love of work.
- Teaching strategies can be divided into two types such as– autocratic strategies and democratic strategies.
- The autocratic style strategies are content centred and teacher remains more active while the students are passive listener.
- The democratic style strategies are mainly child centred.



3.6 FURTHER READING

1) Azarov, Yuri (1988). *Teaching-Calling and Skills*. Moscow: Progress Publishers.
2) Saxena, N. R. Swarup, Dr. Oberoi S. C. *Technology of Teaching*. Meerut: Surya Publications, Near Government Inter College.



3.7 ANSWER TO CHECK YOUR PROGRESS

Ans. to Q. No. 1: a) Content, b) Objectives, c) Input, Output

Ans. to Q. No. 2: Micro approach

Ans. to Q. No. 3: Training

Ans. to Q. No. 4: False

Ans. to Q. No. 5: True

Ans. to Q. No. 6: c) B. S. Bloom

Ans. to Q. No. 7: Project



3.8 MODEL QUESTIONS

A) Very Short Questions (Answer each question in about 50 words)

Q.1: What is known as teaching strategy?

Q.2: How would you define teaching strategy?

Q.3: How would you like to define *principle of feedback* in teaching strategy?

Q.4: Why do you think that motivation is an important strategy in teaching?

Q.5: What is meant by the term Brain Storming?

B) Short Questions (Answer each question in about 150 words)

Q.1: What are autocratic and democratic teaching strategies?

Q.2: Lecture is an autocratic teaching strategy. Explain.

Q.3: Tutorial is an autocratic teaching strategy. Explain.

Q.4: Project is a democratic teaching strategy. Explain.

Q.5: Bloom's mastery learning strategy is a democratic teaching strategy. Explain.

C) Long Questions (Answer each question in about 300-500 words)

Q.1: State the meaning and nature of teaching strategy. What are the objectives of teaching strategy?

Q.2: What are the principles that can be maintained in adopting new strategies for teaching? Explain.

Q.3: What are the classifications of teaching strategies? Discuss each classification in detail.

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UNIT 4: STAGES OF TEACHING

UNIT STRUCTURE

4.1 Learning Objectives

4.2 Introduction

4.3 Nature and Characteristics of Teaching

4.4 Stages of Teaching

- 4.4.1 Pre-active Teaching (Planning stage)
- 4.4.2 Interactive Teaching (Implementation stage)
- 4.4.3 Post-active Teaching (Evaluation stage)

4.5 Models of Teaching

4.6 Let Us Sum-Up

4.7 Further Reading

4.8 Answers to Check Your Progress

4.9 Model Questions

4.1 LEARNING OBJECTIVES

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

- explain the concept of teaching
- identify the teaching process
- describe the different phases involved in teaching
- discuss the different models of teaching.

4.2 INTRODUCTION

Teaching is a complex process. It is considered as an art as well as a science. Teaching is an art as it is concerned with the ability and creativity of the teacher. Again, it is a science because it involves various techniques, procedures and skills. Teaching is a three polar process of education where the teacher, the student and the content to be taught constitute the three poles.

Teaching means modification of behaviour of the pupils' activities and experiences. Teaching skills can be described in terms of a set of inter-

related behaviours, which aim at achieving desirable predetermined learning outcome. As such, planning is done in various steps. The different steps constituting the process are called the stages of teaching.

4.3 NATURE AND CHARACTERISTICS OF TEACHING

Teaching is a tri-polar process. Teaching occurs as a result of interaction between the teacher and the pupil in relation to the curriculum learnt by the pupil for achieving the preferred objectives.

Teaching is a form of inter-personal influence which aims at establishing personal relationship between the teacher and the student for changing the behaviour potential of another personal.

Characteristics of Good Teaching:

- Good Teaching must provide desired information
- Good Teaching must motivate for self-learning
- Good Teaching must have efficient planning
- Good Teaching must be selective and useful
- Good Teaching must provide opportunities for activity
- Good Teaching must help the child to adjust himself to his environment.

4.4 STAGES OF TEACHING

As teaching involves different activities, it has to be carried out systematically in steps. The whole procedure of teaching may be divided into ***three phases*** considering the different steps to be followed in each phase. Phillip. W. Jackson says that in order to understand properly what teaching means, we must consider all the activities what the teacher performs before teaching, in teaching and after teaching in the course of regular classroom teaching. These activities are different at different phases of teaching. Different phases of teaching are–

- Pre-active Teaching (Planning stage)
- Interactive Teaching (Implementation stage)
- Post-active Teaching (Evaluation stage)

4.4.1 Pre-active Teaching

Pre-active Teaching is also called the planning stage of teaching. Before entering the classroom, the teacher has to plan the lesson and then provide the actual presentation of the lesson in the class. This is known as pre-active stage of teaching. Pre-active phase is concerned with the preparation for teaching. This stage means the planning of a teacher for teaching. The teacher has to plan and make all arrangements which are required for the actual presentation of classroom teaching. In this phase the teacher has to perform many tasks. Pre-active behaviour is, more or less, deliberative. At this stage, the teacher hypothesises about the possible outcome of his teaching.

In Pre-active stage teacher has to follow some steps:

- Formulation of the goals
- Taking decisions about the content
- Arrangement of the ideals and styles of teaching
- Taking decisions about the appropriate means of presentation
- Developing teaching strategies for the specific subject matter.

Let us discuss them in some details:

a) **Formulation of the goals:** In this stage the teacher formulates the instructional objectives of teaching which are expected to come out as behavioural changes of the learner at the end of teaching.

b) **Taking decisions about the content:** The teacher decides about the content to be taught to the students on the basis of–
   - Demand of the curriculum constructed for the students.
   - The terminal behaviour and needs of the students

c) **Arrangement of the ideals and styles of teaching:** The teacher has to arrange sub-contents in a logical sequence in such a way that it should facilitate the transfer of learning.

d) **Decisions about the appropriate means and ways of presentation:** The teacher has to decide about the appropriate means and ways of presentation keeping in views the nature and structure of the content and objectives of teaching.

e) **Development of teaching strategies:** The teacher has to decide in advance about the strategies to be used during the course of his classroom teaching.



LET US KNOW

In pre-active stage, a teacher should follow the following two basic steps–

- Fixing up the goals and content,
- And take a decision about strategy.



CHECK YOUR PROGRESS

Q.1: What do you mean by pre-active teaching?

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Q.2: What are the different steps that are followed by the teacher in pre-active teaching?

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Q.3: Pre-active Teaching means Implementation stage. (Yes/No)

4.4.2 Interactive Teaching

Interactive Teaching (Implementation stage): Inter-active phase of teaching means the real classroom teaching. This phase includes all activities of the teacher which he performs in the classroom from the moment he enters the classroom till the presentation of the content. At this phase, the teacher uses a number of strategies for achieving the goals already set. Here, the behaviour of the teacher is more or less spontaneous.

Interactive Teaching does not mean just leaving students to make whatever sense they can from any experience (learning by

doing); but, to be of value, it needs the interaction of sensitive teachers to interact with students and challenge their thinking exposing them to new ideas.

Operations at the inter-active stage Involves:

- ***Facilitator*** and learners,
- Encouraging the learners to participate,
- Using questions to stimulate discussion,
- Emphasizing the value of answers,
- Giving participants hands-on experience,
- Using teaching aids to gain and retain attention.



Facilitator: Who makes teaching-learning simple.

Interactive teaching is a ***two way process*** where the lecturer modifies his or her approach in response to the needs of the learner. The interactive lecturer is wholeheartedly aware of the learners and their different learning styles. All good lecturers are interactive lecturers. It is not possible to teach effectively without interaction.

Again, Interactive learning is also a two way process but the learner may be interact with the lecturer, with peers, with resources or with all three.

Interactive teaching values student's prior ideas and aims at empowering students to be independent learners. For teachers, it offers an opportunity to learn along with the students and to use their interactive skills to listen carefully and challenge misconceptions where possible. The teacher's own knowledge will always be an important factor. It covers verbal explanation, asking questions, listening to student's responses and providing guidance services.



CHECK YOUR PROGRESS

Q.4: Say Yes or No:

a) Interactive Teaching means Implementation stage. (Yes/No)

b) Interactive learning is a two way process. (Yes/No)

Q.5: What do you mean by 'Facilitator'?

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4.4.3 Post-active Teaching

Post-active phase is known as the evaluation stage. In this stage the teacher evaluates the student's performance based on classroom teaching. It provides necessary feedback to the teacher and the students in bringing desirable improvement in their performance. It is related to both teaching and learning.

This phase starts after the completion of the teaching task. Here the teacher asks some questions to the pupils verbally or in written form. The reason for asking the questions is to evaluate the behavior of the pupils properly whether they have achieved the preferred objectives or not. It helps the teacher to teach things better in future. It also helps the students to learn things better.

Some operations are involved in the post active stages:

- Assessing the behavioural changes of the students.
- Selecting appropriate testing device.
- Changing or improving strategies of teaching.



LET US KNOW

In ***post active stage***, necessary feedback is important.



CHECK YOUR PROGRESS

Q.6: What is understood as post active teaching?

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Q.7: Say Yes or No:

i) In post active teaching teacher evaluates his student. (Yes/No)

ii) Feedback is not very important in post-active teaching. (Yes/No)

4.5 MODELS OF TEACHING

Teaching is both an art and a science. Teaching is very much an art which exercise talent and creativity. It is a science because it involves various techniques, procedures and skills that can be systematically studied, described and improved. To make teaching more effective, efforts are being made to develop theories of teaching but so far no such theory of teaching could be formulated. A teaching model is an instructional design which intensely expresses the interrelation of various teaching learning conditions. Definitions–

- Joyce and Weil (1972) "Teaching models are just instructional designs. They describe the process of specifying and producing particular environmental situations which cause the student to interact in such a way that specific change occurs in his behavior."
- Joyce and Weil (1978) "A model of teaching consists of guidelines for designing educational activities and environment. It specifies ways of teaching and learning that are intended to achieve certain kind of goals."
- Paul D. Eggen and others (1979) "Models are prescriptive teaching strategies designed to accomplish particular instructional goals."
- B. K. Passi, L. C. Singh and D. N. Sansanwal (1991) "A model of teaching consists of guidelines for designing educational activities and environments. Model of teaching is a plan that can also be utilized to shape courses of studies, to design instructional material and to guide instruction.
- Models of teaching are defined by Eggen as prescriptive teaching strategies which used to realize specific instructional objectives.

Models represent the broadest level of instructional practices and present a philosophical orientation to instruction. Models are used to select and to structure teaching strategies, methods, skills and student activities for a particular instructional emphasis.

Purpose of Models of Teaching:

- It helps the teacher in selecting appropriate teaching strategies and methods for creating favorable teaching environment and for effective utilization of materials for realizing the objectives.
- It helps in bringing desirable changes in the behaviour of the learner.
- It helps the curriculum designers to provide variety of educational experiences.
- It helps in creating more interesting and effective teaching material.
- It helps in creating effective teacher pupil interaction during teaching.

Fundamental Elements of a Teaching Model: A teaching model consists of six fundamental elements–

- Focus
- Syntax
- Principles of reaction
- The social system
- The support system
- Application context
- **Focus:** Focus is central aspect of a teaching model. It includes the objectives of teaching and the aspect of the environment.
- **Syntax:** It is described in terms of sequence of activities which are called phases. Each model prescribes four phases:
  - Formulation of instructional objectives
  - Determination of entry behaviour
  - Design and Implementation of instructional procedure
  - Performance Assessment
- **Principles of reaction:** According to this principle the teachers' role towards the learner is to guide him. Immediate check of wrong answers and acceptance of right answers is the guiding principle of this element.

- **The social system:** This model is moderately structured**.** The students initiate the problem and cooperatively discuss and find out its solutions.
- **The support system:** It means providing facilities, other than human skills or capacities, to teacher and students for the successful implementation of the teaching strategies**.** The teacher must provide proper environment for proper group discussion**.**
- **Application context:** There are several types of teaching model and each type attempts to describe the feasibility of its use in different context.

Types of teaching models:

- Historical Teaching Models
- Philosophical Models of Teaching
- Psychological Models of Teaching
- Teaching Models for Teacher Education
- Modern Teaching Models

Joyce and Weil have classified modern Teaching Models under four families.

a) **Information Processing Models:** This family is concerned with intellectual growth of the individual. Seven models are integrated in this family.
   - Inductive Thinking Model
   - Inquiry Training Model
   - Science Inquiry Model
   - Concept Attainment Model
   - Development Model
   - Advance Organizer Model
   - Memory Model.

b) **Social Interaction Models:** These models give stress on the development of capabilities for inter-personal relationship. The importance of these models is on the development of social skills which help individuals to engage in the society.
   - Group Investigation Model
   - Social Inquiry Model

- Laboratory Training Model
- Role Play Model
- Social Simulation Model

c) **Personal Development Models:** This family aims at promoting the ability for personal development in terms of creativity.

- Non-directive Teaching Model
- Awareness Training
- Conceptual Systems
- Classroom Meeting Model

d) **Behavioural Modification Models:** These models have been developing on the basis of Skinner's theory of Operant Conditioning. They give importance on changing external behaviour of the learner.

Utility of teaching model: Teaching models have great utility for both the teacher and the learner. The following points in this connection are worth mentioning:

- Teaching model is by nature practical. It helps one to achieve learning.
- Teaching model helps the teacher in making his/her teaching more effective.
- Teaching model can help for teaching specific components of a lesson.



CHECK YOUR PROGRESS

Q.8: What are the purposes of models of teaching?

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Q.9: What are the different families of models of teaching?

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Q.10: Under which family, 'Inquiry training model' is implied?

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4.6 LET US SUM-UP

- Teaching is a complex process. Teaching skills can be described in terms of a set of inter-related behaviours, which aim at achieving predetermined desirable learning outcome.
- As teaching involves different activities, it has to be carried out systematically in steps. The whole procedure of teaching may be divided into three phases considering the different steps to be followed in each phase. Different phases of teaching are-
  - Pre-active Teaching is a planning stage. Pre-active phase is concerned with the preparation for teaching.
  - Interactive Teaching implies at the implementation stage. Inter-active phase of teaching means the real classroom teaching.
  - Post-active Teaching is an evaluation stage of teaching. In an instructional situation, the teacher evaluates the student's performance based on classroom teaching.
- Good Teaching must provide desired information, motivate for self-learning, efficient planning, selective and useful, opportunities for activity, organization of learning and help the child to adjust himself to his environment.
- A teaching model is an instructional design which intensely expresses the interrelation of various teaching learning conditions. Models are used to select and to structure teaching strategies, methods, skills and student activities for a particular instructional emphasis.

- Joyce and Weil have classified modern Teaching Models under four families. They are- Information Processing Models, Social Interaction Models, Personal Development Models and Behavioural Modification Models.
- Teaching model should be practical in nature. It helps to achieve learning, in making the teaching more effective etc.



4.7 FURTHER READING

1) Aggarwal, J. C. (1997). *Essentials of Educational Technology: Teaching-Learning Innovations in Education*. New Delhi: Vikash Publishing House Pvt. Ltd.
2) Das Borbora, Dr. Rupa and Goswami, Dr. Deepali (2005). *Educational Technology*. Arun Prakashan.
3) Goswami, Meena Kumari (2008). *Educational Technology*. Asian Books Pvt. Ltd.



4.8 ANSWERS TO CHECK YOUR PROGRESS

Ans. to Q. No. 1: Pre-active teaching is a planning stage of teaching. It is concerned with the preparation for teaching.

Ans. to Q. No. 2: In pre-active stage, a teacher should follow the following two basic steps–

- Fixing up the goals and content,
- And take a decision about strategy.

Ans. to Q. No. 3: No.

Ans. to Q. No. 4: i)Yes, ii) Yes

Ans. to Q. No. 5: A facilitator is one who makes teaching-learning process as simple as possible to the learners or the followers.

Ans. to Q. No. 6: Post-active Teaching is also known as evaluation stage of teaching. This phase starts after the completion of the teaching task. Here teacher ask some questions to the pupils verbally or in written form.

Ans. to Q. No. 7: i) Yes, ii) No.

Ans. to Q. No. 8: The basic purpose of the model of teaching are–

- Model of teaching helps the teacher in selecting appropriate teaching strategies and methods for creating favorable teaching environment and for effective utilization of materials for realizing the objectives.
- It helps in bringing desirable changes in the behaviour of the learner.
- It helps the curriculum designers to provide variety of educational experiences.
- It helps in creating more interesting and effective teaching material.
- It helps in creating effective teacher pupil interaction during teaching.

Ans. to Q. No. 9: Joyce and Weil have classified modern Teaching Models under four families: (a) Information Processing Models, (b) Social Interaction Models, (c) Personal Development Models (d) Behavioural Modification Models.

Ans. to Q. No. 10: Information Processing Models family.



4.9 MODEL QUESTIONS

A) Very Short Questions (Answer each question in about 50 words)

Q.1: What is meant by teaching?

Q.2: State two important characteristics of teaching.

Q.3: What are the different steps that are followed by the teacher in pre-active teaching?

Q.4: Why is pre-active teaching known as planning stage of teaching?

Q.5: Who is a 'Facilitator'?

B) Short Questions (Answer each question in about 150 words)

Q.1: Explain the nature of teaching.

Q.2: What is known as pre-active teaching?

Q.3: What is understood as interactive teaching? Eucidate.

Q.4: What is known as post-active teaching? Explain.

Q.5: Why do you think that model is important in teaching? What are the purposes of models?

C) Long Questions (Answer each question in about 300-500 words)

Q.1: Describe the different phases of teaching and their operations.

Q.2: Explain the term 'Model of teaching' and its various purposes.

Q.3: What are the fundamental elements of a teaching model? Illustarte with example.

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UNIT 5 : IMPROVISING TEACHING-LEARNING MATERIALS FOR CLASSROOM TEACHING

UNIT STRUCTURE

5.1 Learning Objectives

5.2 Introduction

5.3 Concept of Teaching-Learning Materials

5.4 Importance Teaching-Learning Materials

5.5 Improvising teaching-Learning Materials

5.6 Let Us Sum Up

5.7 Further Reading

5.8 Answers to Check Your Progress

5.9 Model Questions

5.1 LEARNING OBJECTIVES

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

- identify the meaning of teaching-learning material
- explain the different types of teaching-learning material
- describe the role of teaching material in classroom teaching.

5.2 INTRODUCTION

In conventional teaching, the teacher is mainly concerned with imparting knowledge, skill etc to the students through lectures, discussions, reading of books or asking questions. The teacher also uses black-board, charts, maps etc. In other words, the common practice in connection with teaching is with the help of written and oral language. But language has many limitations which may give rise to learning difficulty. Today, the extent of education has undergone a revolutionary of change. The present trend is more towards “watch and do” kind where concrete experiences are the basis of all effective learning. Audio-visual aids such as motion pictures, slides, filmstrips, radio, micro-projectors, maps, graphs have become the

order of the day. The number of aids for teaching at our disposal has increased in such a way that today a teacher of any subject need not resort to the traditional methods of teaching. By using audio-visual aids in teaching, the (modern) teacher has become a better teacher: more active, efficient, effective and probably more attractive.

With the availability of electro-mechanical devices, the scenario has changed completely which makes teaching much easier and faster. Instruction can be provided by using computer, television or different aids in the formal classroom. A large number of teachers still employ the traditional methods of lecturing or discussing.

5.3 CONCEPT OF TEACHING-LEARNING MATERIALS

Generally, in teaching-learning process, the teacher uses text-books. But now a days, the use of text-book only is not sufficient. So, a teacher can use different materials for better teaching. Materials that are used in classroom teaching are known as teaching-learning materials. Sensory experience forms the foundation for intellectual activity. Sensory aids affords an economy of time in learning for the learners.

In the traditional classroom teaching, there is hardly any scope for the children to interact with the teacher, teaching-learning materials and the teaching-learning environment. As such, teaching becomes very monotonous and students have to rely mostly on rote learning. Most often classroom teaching is dominated by the **Lecture Method** of the teacher where some essential aids like chalk, duster, blackboard, etc. are used.

In this context, there is a need to orient teachers and develop appropriate context-specific teaching learning materials which are useful for enhancing the quality of teaching-learning process. Here, the teacher can prepare different teaching materials for his/her classroom teaching. As demanded by the subject to be taught, the teacher can prepare various materials. For example, to teach geography, he can use maps; for sciences, models; for mathematics; graphs, charts, pictures etc.

Likewise, in case of nature studies, the teacher may collect different materials from his surroundings. He can instruct the students to collect

different materials through which one can build their house in that particular area. In this way, the students will easily know where all the materials come from and will learn many basic things.

When used it may not be context-specific. One of the major aims of NCERT (2005) is designing, providing for, and enabling appropriate teaching-learning systems that could realise the identified goals. Learning has shifted from ***Response Strengthening*** to ***Knowledge Acquisition*** to ***Construction of Knowledge***. In this context, the duty of the teacher is to provide appropriate environment where the child will construct his knowledge by interacting with his physical and social environment.



LET US KNOW

- **Response Strengthening:** It is a learning process which was developed in the first half of 20th century and based largely on the study of animal learning in artificial laboratory settings. In this learning process, the role of the learner is to passively receive rewards and punishments, such as drill and practices. Here, the instructional designer's role is only to create an environment where the learner repeatedly is cued to give a simple response, which is immediately followed by feedback.
- **Knowledge Acquisition:** The knowledge of acquisition is based on the idea that learning occurs when a learner places new information in the long term memory. This view was developed in the 1950s, 1960s and 1970s. It was largely based on the study of human learning in the artificial laboratory settings. Here, the role of the learner is to passively acquire information and the teacher's job is to present information with the help of text books, lecture method and computer based multi-media programs. In this process of learning, the basic motto is to transmit the information from the teacher to the learners.
- **Construction of Knowledge:** This process of learning is based on the idea that learning occurs when a learner actively constructs

a knowledge representation in working memory. This view of learning emerged in the 1980s and 1990s and was largely based on the study of human learning in increasingly realistic settings. Thus, in this realistic process of learning, the learner is a sense-maker, and the teacher is a cognitive guide (who is trying to develop the knowledge of the learner) who provides guidance with the help of authentic academic tasks.



CHECK YOUR PROGRESS

Q.1: What do you mean by teaching-learning materials?

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Q.2: What kinds of material are used in teaching geography in school?

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Q.3: What are the major aims of NCERT 2005?

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Q.4: Classroom teaching is dominated by the lecture method. (Yes/No.)

5.4 IMPORTANCE OF TEACHING-LEARNING MATERIALS

There is a positive relationship between pupil achievement and the availability and use of activity sheets, work sheets, textbooks, supplementary reading materials and other learning materials.

While supporting learners in their learning process, supplementary materials, such as reference books, self-study material, storybooks, additional exercises, workbooks, and charts can also contribute to effective classroom management by passing more learning responsibilities to students.

The teaching-learning materials should be:

- suitable for the age and mental development of the learner.
- challenging for higher ability students
- made interesting by making use of various activities
- appropriate to the context and with authenticity of the content.
- should consist of different range of learning materials, such as, books, charts, worksheets, along with additional reading material and easily manipulative materials.

We all know that when we visualize something we recall that particular event for a long time. Therefore, the teacher uses different teaching aids for classroom teaching.



LET US KNOW

According to UNICEF document **'Happy Learning'**, the use of appropriate, diverse and adequate teaching learning materials is an essential condition for supporting and sustaining children's learning abilities and outcomes.



CHECK YOUR PROGRESS

Q.5: What are the supplementary materials in teaching-learning process?

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Q.6: Mention two main features of the teaching-learning materials.

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.....

Q.7: Who has introduced **'Happy Learning'?**

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5.5 IMPROVISING TEACHING-LEARNING MATERIALS

Two basic questions that arise in the teaching-learning process are: if improvisation is important in teaching and learning, then (a) what are the

conditions that can be set up to promote this in lectures? (b) How can we use improvisation in our own teaching and how can we get students to improvise in order to solve problems and answer new questions?

Let us discuss in more details what we understand by improvisation.

Improvisation is the ability to get hold of existing pieces and put them together in a new combination for a purpose. The pieces could be bits of information about a problem or they could be parts of a melody. Teachers or students apply tools or methods to these pieces in a very flexible manner.

Use of teaching aids becomes a requirement whatever method is adopted. The teaching aids vary in nature and complexity from the simple but necessary and effective chalkboard diagram to the closed circuit television. The right type of aid should be used in the right way at the right time. Suitable facilities should be available to make use of the available aids.

Some aids could be improvised. Some aids could be easily fabricated. It will be necessary to purchase some aids. The aids are used in the classroom.

Improvisation means creating instructional materials by teachers and pupils using locally available resources.

Through this, teachers are able to conduct experiments and demonstrations at low cost. Improvisation serves to minimize educational costs. Despite this, many teachers are either unwilling or unable to improvise teaching materials for lack of skills or appreciation of the need to do this. On the other hand this behaviour on the part of the teachers is understandable. They need to be rewarded for the extra time they would need to spend in order to produce teaching materials.

If we say ‘Science is doing’ and teaching of every topic should possibly be supplemented by appropriate activities or practical, then it is essential to have sophisticated labs full of apparatus, equipment and chemicals. In fact, such facility is neither always available and nor do we need it always. While teaching, if one gets the required experimental arrangement ready-made, it is well and good. However, sometimes the standard teaching aids may remain out of reach for us– may be due to various reasons (like geographic, economic or climatic). In that case, one has to look around; it is quite possible

that one gets something from the surroundings, which may serve as a better teaching aid for the topic. Going a step further, the innovative ones may prepare such an aid from the available materials from here and there. Improvisation is the term that refers to an off hand construction of a teaching aid with simple available materials costing little or nothing.

Improving teaching and making the whole of the learning process more effective is the key to raising standards of teaching. There are at least three initiatives that could keep good teaching at the top of the school improvement agenda:

- Every child matters. It is at the heart of almost everything that is happening in schools and at its centre. It clearly and definitely emphasises the importance of meeting the needs of all children.
- Secondly, 'personalised learning' –which is a new term for making sure that the learning needs of all children are catered for.
- Finally, the importance of successful performance management, which could be modified slightly during a particular session. When performance management is done properly it is about understanding what successful teaching is, observing it in the classroom and improving as many skills and techniques as possible.

If textbooks, supplementary reading materials and other learning materials for learners are available, some of the most effective materials that facilitate pupil learning are **teacher-made products from local materials**. The learners can also produce their own reading materials. The teachers and children can collect materials that are readily available in their homes or in the environment.

In other words, learners should be the centre of instruction and learning. The curriculum is a statement of the goals of learning, the methods of learning, etc. The role of teachers is to help learners to learn. Teachers have to follow the curriculum and provide, make, or choose materials. They may adapt, supplement, and elaborate on those materials and also monitor the progress and needs of the students and finally evaluate students.

Materials include textbooks, video and audio tapes, computer software, and visual aids. They influence the content and the procedures of

learning. The choice of deductive vs inductive learning, the role of memorization, the use of creativity and problem solving, production vs. reception, and the order in which materials are presented, are all influenced by the materials.

Though students should be the centre of instruction, in many cases, teachers and students rely on materials, and the materials become the centre of instruction. Since many teachers are busy and do not have the time or tendency to prepare extra materials, textbooks and other commercially produced materials are very important in language instruction. Therefore, it is important for teachers to know how to choose the best material for instruction, how to make supplementary materials for the class, and how to adapt materials.

Now-a-days, many teachers go abroad during vacations these days, and they can collect materials in English-speaking countries. TV and radio are good sources. They provide a variety of materials. The information is current and the language is natural, but the content has to be chosen carefully. Newspapers, magazines, advertisements, and other types of printed material are very useful. Teachers can take photos; make video tapes or record audio tapes. If they make plans before they go to foreign country, they may be able to make good video or audio programs.

On account of the shortage of science instructional materials and equipment that assist in the delivery of the curriculum, the designers of the curriculum have to ask the teachers to improvise. Specifically, teachers have been urged to utilise what is available locally to enable their students to influence their local environment. This perhaps, reflects the weakness in science curriculum, which does little to contextualize learning but perpetuates a puristic approach that seems to suggest that science occurs in a social vacuum. Learners should be able to appreciate the local application of what they learn in school.

The teaching materials' projects undertaken in the context of the teaching practice by B.Ed. (science) students are planned to provide science teaching aids where they do not exist in schools. In the process of project implementation, emphasis is laid on the creative use of locally available resources to develop low cost useable teaching materials. Scrap timber

from the school workshop, stones from a local quarry or riverbed, cement mixed with sand and water to make concrete, have been creatively used in the production of teaching aids.

When we say of improvisation, it is not out of place to cite examples of some enterprising teachers who are fond of improvising themselves or with the help of their students create something new out of wastes. Here are a few examples:

Take the case of the unfortunate situation, where a teacher skips all practical on image formations by spherical mirrors and lenses only because his school lab does not have an optical bench. Whatever efforts he may make to explain the topics theoretically, the empty space remains there. While on the other hand there are instances of several teachers who do perform those experiments of spherical mirrors and lenses simply by improvisation, using metre scale, candle, improvised stands and improvised screen made out of things which we throw otherwise. When experiments on 'trolley' and 'falling body through viscous liquid' were introduced in the syllabus, several teachers improvised the experimental arrangements most successfully. In fact, through Improvisation one can take care of his creative ability.

Activities connected with science exhibitions of science clubs provide opportunities to the students to demonstrate their ideas and creativity. There are people who complain about the uselessness of a science exhibition involving wastage of time, energy and money and displaying of old or 'ready-made' models. There lies a difference between a creative scientists and an ordinary student. On the other hand the child cannot be responsible; it is the teacher, who has to guide the child. It is true that – one can take the horse to water, but one cannot make it drink'. The teacher can only motivate and provide a friendly atmosphere for the child so that his creative skill may bloom. And this can be done spontaneously through day-to-day activities. It is unnecessary to think of separate class for 'teaching' creativity.

When we look around us, we see so many things which were once used for some reason but are now turned into wastes. The waste materials otherwise create an environmental risk. These need only to be disposed off. Many of these may or may not be recycled. We can think of using these purposefully to create something useful. Again, the proper use of available

waste materials in improvising some experimental arrangement, model, project or activity leads to the development of creative skill. And through the creative skills, the child acquires the basic objective of learning science – viz. Knowledge, Understanding and Application. It will be an accomplishment for a teacher, if he can bring a situation where he improvises three or four teaching aids and his student comes forward with a new idea to create of his own.

The advantages of improvisation are so evident. It gives an alternative to aids which are not available, costly or out of reach. Using waste materials for constructing an aid not only involves low or no cost but also helps in reducing environmental hazard, These aids are usually simple, easy to construct and easy to handle. These are repairable, replaceable and disposable. Above all, improvisation can be helpful in making the teaching child-centred, activity oriented and participatory. What is notable, it helps the child in inculcating scientific temperament and provides scopes to develop creative sense.



CHECK YOUR PROGRESS

Q.8: What do you mean by improvising of learning material?

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Q.9: What type of initiation should take in school environment for good teaching?

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Q.10: Give one example of improvising learning material in any subject.

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Q.11: Say Yes/No:

Using waste materials for constructing an aid not only involves low or no cost but also helps in reducing environmental hazard.



5.6 LET US SUM UP

- In traditional teaching the teacher is mainly concerned with the imparting of knowledge, skill etc. through lectures, discussions, reading of books or questions.
- In this type of education, the teacher uses black-board, charts, maps etc. but now-a-days the situation has changed with the availability of electro-mechanical devices making teaching easier and faster.
- Generally, in teaching-learning process the teacher uses text-books. But text-book alone is not enough. So, the teacher can use different materials for better teaching. Materials that are used in classroom teaching are known as teaching-learning materials.
- The teacher can prepare various materials according to his subject. When a teacher teaches geography in school he use maps, for science models and for mathematics graphs, charts, pictures etc.
- While preparing different teaching materials teachers should give more importance to–
  - suitability according the learner's age and mental level
  - requirements of higher ability students or gifted children
  - use of various activities to make teaching-learning as interesting
  - appropriateness to the context and content validity.
- Use of teaching aids becomes a requirement whatever method is adopted.
- The teaching aids vary in nature and complexity from the simple one using chalkboard and diagram to the closed circuit one like television.
- Improvisation enables teachers to conduct experiments and demonstrations at low cost. Improvisation serves to minimise educational costs.
- There are at least three initiatives that are keeping good teaching at the top of the school improvement agenda. They are– (1) the needs of all children (2) 'Personalised learning' and (3) the importance of successful performance, management.

- Students are the centre of instruction but in many cases when teachers and students rely on materials, the materials become the centre of instruction.
- Teachers are to know how to choose the best material for instruction and to use supplementary materials for the class as well as to adapt materials.
- Improvisation offers many advantages that include replacing aids which are not available, costly or out of reach, use of waste materials for constructing an aid that involves low or no cost and reduce environmental hazard. Besides the aids, are simple, easy to make and easy to handle, easily repairable and replaceable.
- Finally, improvisation makes teaching child-centred, activity oriented and participatory.



5.7 FURTHER READING

1) Mathur, Dr. S. S. (1996). *Teacher And Secondary Education*. Agra: Vinod Pustak Mandir.

2) Sampath, K.; Panneerselvam, A.; Santhanam, S. *Introduction to Educational Technology*. Sterling Publisher Pvt. Ltd.



5.8 ANSWERS TO CHECK YOUR PROGRESS

Ans. to Q. No. 1: Materials that are use in classroom teaching are known as teaching-learning material.

Ans. to Q. No. 2: In school, teacher teaches geography with the help of maps.

Ans. to Q. No. 3: One of the major aims of NCERT (2005) is designing, providing for, and enabling appropriate teaching-learning systems that could realise the identified goals.

Ans. to Q. No. 4: Yes.

Ans. to Q. No. 5: Supplementary materials are reference books, self-study material, storybooks, additional exercises, workbooks, and charts etc.

Ans. to Q. No. 6: The two main features of the teaching-learning materials are: age and developmentally suitable and different range of learning materials.

Ans. to Q. No. 7: UNO or UNICEF

Ans. to Q. No. 8: Improvisation is the ability to get hold of existing pieces and put them together in a new combination for a purpose.

Ans. to Q. No. 9: New term for making sure that the learning needs of all children are catered for.

Ans. to Q. No. 10: The teacher can prepare various materials for his teaching. For example, to teach geography, he can use maps, globe, models, charts, pictures etc.

Ans. to Q. No. 11: Yes.



5.9 MODEL QUESTIONS

A) Very Short Questions (Answer each question in about 50 words)

Q.1: What is meant by teaching?

Q.2: What are teaching-learning materials?

Q.3: What does construction of knowledge imply?

Q.4: Explain the importance of Lecture method.

Q.5: What kind of materials are used in teaching geography in schools?

B) Short Questions (Answer each question in about 150 words)

Q.1: Explain the needs and importance of teaching-learning materials.

Q.2: What do you mean by improvising of teaching-learning material? Give some examples.

C) Long Questions (Answer each question in about 300-500 words)

Q.1: Why do you think that improvisation is important in teaching techniques for making the teaching learning process more effective? Discuss.

Q.2: Discuss the main features of teaching-learning materials.

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UNIT 6: ROLE OF MASS-MEDIA IN EDUCATION

UNIT STRUCTURE

6.1 Learning Objectives

6.2 Introduction

6.3 Meaning of Mass-Media

6.4 Different types of Mass-Media

6.4.1 Broadcasting Radio

6.4.2 Television

6.4.3 T.V (SITE)

6.5 Let Us Sum Up

6.6 Further Reading

6.7 Answers to Check Your Progress

6.8 Model Questions

6.1 LEARNING OBJECTIVES

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

- explain the meaning of mass-media
- identify the different types of mass-media
- discuss the role of mass-media in education.

6.2 INTRODUCTION

Every country in the world is packed with three kinds of powers: legislative, executive and judicial. However, it is considered that there exists a fourth one– the mass-media. The development of any state is dependent on the industrial capacity which in turn depends on how well a society is informed. Whoever owns the information is assured of continuous development.

An informed society features continuous evolution and increment of quality and quantity. A progressive society assures places of work and as a result a higher quality of life and financial stability of the population.

This is the reason why we tend towards a more informed society which is built of and for the educated people. Passage to an informed society

is a gradual and difficult process, but not an impossible one. First of all, it should be done at all levels (cultural, social, and political). Second, it should be implemented starting with the youngest representatives of the society, inserting the newest informing methods in educational institutions. Last, but not the least, information should be assured free access through effective means. This is where the notion of mass media comes into picture.

Mass media denotes a section of the media specifically designed to reach a very large audience such as the population of a nation. The term was coined in the 1920s with the beginning of nationwide radio networks in the USA. However, some forms of mass media such as books and manuscripts had already been in use for centuries. The term public media has a similar meaning: it is the sum of the public mass distributors of news and entertainment across media such as newspapers, television, radio, broadcasting etc. Mass media also includes Internet media because individuals now have a means that provides them exposure which is comparable in scale to the one previously restricted only to a select group of mass media producers. The communications audience has been viewed by some commentators as forming a mass society with special characteristics, notably atomization or lack of social connections, which render it especially inclined to the influence of modern mass-media techniques such as advertising and propaganda.

6.3 MEANING OF MASS-MEDIA

The term mass-media stands for spreading of information, ideas and entertainment by the use of communication media. Generally, distant communication via some medium is imported through mediated situation. Mass-media are means or instruments of communication that reach large number of people with a common message. The media include those which use modern means of communication such as radio and television film, the press, publication and advertising. Communication includes all methods of disseminating information, knowledge, thought, attitudes, and beliefs. Modern mass media like newspapers, cinema, and television, and traditional media of social communication like the bazaar, puppet show, drama, dance,

local meetings, as well as inter-personal communication media like posts and telegraphs, teleprinters, and telephones all impact the language use. Language is the underlying and basic factor of these categories of mass media. Hence, for an effective and proper utilization of these mass media, language education is very essential and relevant.

- By definition, mass communication is a message created by a person or a group of people sent through a transmitting device (a medium) to a large audience or market.
- In India, the Ministry of Information and Broadcasting has a large set-up of mass communication, with the regional and branch offices as well as mobile units, spread all over the country.
- Mass-media can be used for various purposes, one of which is advocacy, both for business and social concerns. This may include advertising, marketing, propaganda, public relations, and political communication.
- Since the late 20th century, mass media consists of the various traditional programmes of entertainment, through the performances of acting, music, and sports, besides light reading, public service announcements etc.

6.4 DIFFERENT TYPES OF MASS-MEDIA

In early times, the teacher was the only medium of communication for children. He taught his students verbally. During the course of time, invention of the printing press led to the printing of books. Then came the newspapers.

Mass-media helps not only by reaching a large number of people but also spreading compulsory primary education, adult literacy, distance education and making instruction more effective and meaningful. There are different types of mass-media such as– Radio, Television, Tape-recorder, S.I.T.E and Multi-media packages etc. Among them, in this unit, we are dealing with the Radio, Television and SITE.

6.4.1 Broadcasting Radio

Modern-day community radio stations often serve their listeners by offering a variety of content that is not necessarily provided by the larger commercial radio stations. Community radio outlets may carry news and information programming geared toward the local area.

Radio is the most popular mass-media in our country. It also entertains people in remote areas not within the reach of newspapers. Radio broadcasts started in India in 1927 with two privately owned transmitters at Bombay and Calcutta. The Government of India took them over in 1930 and started operating them under the name of Indian broadcasting Service. In1936, the name of service was changed to All India Radio (AIR).

All India Radio's network consisted of six radio stations in 1947. Now there are more than hundred stations. These cover all the important cultural and linguistic regions of the country.

All India Radio had the main responsibility for programme generation and the programmes were made in consultation with the government. Special committees on education, agriculture, health and family planning identified their own programme priorities and conveyed it to AIR.

Today radio sets are available to the people in almost all villages in the country. Radio could be utilized to provide more localized and need-based programmes as there are a large number of radio stations spread over each region and state of the country.

A few of the auxiliary stations of AIR (All India Radio), had already experimented with broadcasting educational programmes related to local needs. It was found that these localized programmes were far more effective than the centralized rural programmes broadcast from the main stations in the state. Experiments have also been conducted by broadcasting adult educational programmes with group radio listening and discussion. These have been found to be very successful, particularly in agriculture education in rural areas.

Radio broadcast has played a vital role in imparting distance learning to educational institutes as well. Today radio stations exist in almost all the Indian States broadcasting educational programmes, for both in-school and out-of-school groups.

Educational broadcasts have been helping the teacher to supplement his classroom instruction significantly. The teacher can now prepare the pupils so that they will benefit to the maxim extent by listening to a specific broadcast. It is desirable that the teacher plans for effective listening and also prepares suitable follow- up work for consolidation.

All India Radio arranged programmes separately for the benefit of elementary, middle and high schools and for the university and correspondence course students.

A breakthrough in legitimizing community radio which began in the mid 1990s, was achieved when the Supreme Court of India ruled that “airwaves are public property” in its judgment of February 1995. This came as an inspiration to groups across the country, but to begin with, only educational (campus) radio stations were allowed, under somewhat stringent conditions.

On 16 November 2006, the government of India notified new Community Radio Guidelines which permit NGOs and other civil society organizations to own and operate community radio stations. About 4,000 community radio licenses are on offer across India, according to government sources. By 30 November 2008, the ministry of Information & broadcasting, government of India, had received 297 applications for community radio licenses, Including 141 from NGOs and other civil society organizations, 105 from educational institutions and 51 for ‘farm radio’ stations to be run by agricultural universities and agricultural extension centers ‘Krishi Vigyan Kendra.



LET US KNOW

In the year of 2009, on 28th and 29th January, Krishna Kanta Handique State Open University got the license for Experimental Broadcast of Community Radio Service for the first time in the entire North East.



CHECK YOUR PROGRESS

Q.1: What do you mean by mass-media?

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Q.2: Mention different types of mass-media.

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Q.3: In which year was Radio broadcasting in India?

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Q.4: What kind of mass media is considered the most popular in India?

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Q.5: Write short note on 'AIR'.

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6.4.2 Television

Television is one of the major means of mass-communication and also a very powerful medium. Due to its widespread network, it has become a major source of information and entertainment for a large number of people.

The education television (ETV) is a major system that presents learning content in various subject areas through programmes prepared by a central agency. It can provide direct instruction (formal education) as well as develop continuing education (non-formal education). It can bring the world into a classroom and a classroom into a home.

Two types of programmes were prepared for broadcasting: ***educational television (ETV)*** and ***instructional television (ITV***). ETV programmes were meant for school children and focused on interesting and creative educational programmes. These programmes were broadcast for 1.5 hours during school hours. During holidays, this time was used to broadcast *Teacher Training Programmes* designed to train almost 100,000 primary school teachers during the duration of the SITE. The ITV programmes were meant for adult audiences, mainly to those who were illiterate. They were broadcast for 2.5 hours during the evenings. The programmes covered health, hygiene, family planning, nutrition, improved practices in agriculture and events of national importance. Thus, the programmes were beamed for four hours daily in two transmissions. The targeted audience was categorised into four linguistic groups– Hindi, Oriya, Telugu and Kannada and programmes were produced according to the language spoken in the cluster.

Due to linguistic and cultural differences, it was agreed that all core programmes would be cluster-specific, and would be in the primary language of the region. A brief commentary giving the idea of the programme would be available on the second audio channel, to keep up the interest of the audience in other language regions.

All clusters would also receive 30 minutes of common programmes, including news, which would be broadcast only in Hindi.



LET US KNOW

The special feature of radio, television, and cinema is that they serve the needs of both literates and illiterates.



CHECK YOUR PROGRESS

Q.6: What do you mean by ETV?

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Q.7: ITV programmes are meant for whom?

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6.4.3 T.V (SITE)

SITE is one of the largest techno-social experiments that were started on 1st August 1975 for a period of one year. Two types of programmes were telecast in 2330 villages of 6 states, such as–

- Develop educational programmes in the area of agriculture and allied subjects. Health, family planning, and social education were telecast in the evening for community viewing.
- For rural primary school children of 5-12 years age group.

The Satellite Instructional Television Experiment or SITE was an experimental satellite communications project launched in India in 1975, designed jointly by NASA and the Indian Space Research Organization (ISRO). The project made available informational television programmes to rural India. The main objectives of the experiment were to educate the poor people of India on various issues via satellite broadcasting, and also to help India gain technical experience in the field of satellite communications.

The experiment ran through one year from 1 August 1975 to 31 July 1976, covering more than 2500 villages in six Indian states.

The television programmes were produced by All India Radio and broadcast by NASA's satellite stationed above India for the duration of the project. The project was supported by various international agencies such as the UNDP, UNESCO, UNICEF and ITU. The experiment was successful, as it played a major role in helping develop India's own satellite program, INSAT. The project showed that India could use advanced technology to fulfill the socio-economic needs of the country. SITE was followed by similar experiments in various countries, which showed the important role satellite TV could play in providing education.

The objectives of the SITE project were divided into two parts:

a) General objective
b) Specific objective

The General objectives of the project were:

- Gain experience in the development, testing and management of a satellite-based instructional television system particularly in rural areas.
- Demonstrate the potential value of satellite technology in the rapid development of effective mass communication in developing countries.
- Demonstrate the potential value of satellite broadcast TV in the practical instruction of village inhabitants; and
- Stimulate national development in India, with important managerial, economic, technological and social implications.

The *primary* general objectives from an Indian point of view were to educate the general population about issues related to family plan ning, agricultural practices and national integration. The *secondary* objectives were to impart general school and adult education, train teachers, and improve other occupational skills and to improve general health and hygiene through the medium of satellite broadcasts. Besides these social objectives, India also wanted to gain experience in all the technical aspects of the system, including broadcast and reception facilities and TV program material.

On the other hand, from the US counterpart, the primary objective was to test the design and functioning of an efficient, medium-power, wide band space-borne FM transmitter, operating in the 800-900 MHz band and gain experience on the utilisation of this space application.

The SITE transmissions had a very significant impact in the Indian villages. For the entire year, thousands of villagers gathered around the TV set and watched the shows. Studies were conducted on the social impact of the experiment and on viewership trends. It was found that general interest and viewership were highest in the first few months of the program (200 to 600 people per TV set) and then declined gradually (60 to 80 people per TV set). This decline was due to several factors, including faults developing in the television equipment, failure in electricity supply, and hardware defects, as also the villagers' pre-occupation with domestic or agricultural work. Impact on the rural population was highest in the fields of agriculture and family planning. Nearly 52% of viewers reported themselves willing to apply the new knowledge gained by them.

Before SITE, the focus was on the use of global transmission for television signals. But SITE showed that India could make use of advanced technology to fulfill the socio-economic needs of the country. This led to an increased focus on satellite broadcasting in India. ISRO began preparations for a country-wide satellite system. After conducting several technical experiments, the Indian National Satellite System was launched by ISRO in 1982. The Indian space program remained committed to the goal of using satellites for educational purposes. In September 2004, India launched EDUSAT, which was the first satellite in the world built exclusively to serve the educational sector. EDUSAT is used to meet the demand for an interactive satellite-based distance education system for India.



ACTIVITY 6.1

How does mass-media infuance the education of the masses? According to you what kind of topics should be included in the curriculum?

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LET US KNOW

SITE : The Satellite Instructional Television Experiment

NASA : "National Aeronautics and Space Administration" of USA.

ISRO : Indian Space Research Organization

UNDP : United Nations Development Programme

UNESCO : United Nations Education, Social and Cultural Organization.

UNICEF : United Nations Children's Fund

ITU : International Telecommunication Union

INSAT : Indian National Satellite System



CHECK YOUR PROGRESS

Q.8: What is the full form of SITE?

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Q.9: When was the SITE programme launched in India? What are the primary objectives of SITE?

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6.5 LET US SUM UP

- Mass-media denotes a section of the media specifically designed to reach a very large audience such as the population of a nation.
- Mass-media stands for spreading of information, ideas and entertain rich use modern means of communication such as radio and television film, the press, publication and advertising.
- There are different types of mass-media such as Radio, Television, Tape-recorder, S.I.T.E, Multi-media packages etc.
- Radio is the most popular mass-media in our country. It will also entertain people in remote areas not within the reach of newspapers.
- All India Radio had the main responsibility for programme generation and the programmes were made in consultation with the government. Special committees on education, agriculture, health and family planning identified their own programme priorities and conveyed it to AIR.
- Radio could be utilized to provide more localized and need-based programmes as there are a large number of radio stations spread over each region and state of the country.
- The education television is a major system that presents learning content in various subject areas through programmes prepared by a central agency.
- The Satellite Instructional Television Experiment or SITE was an experimental satellite communications project launched in India in 1975.
- In September 2004, India launched EDUSAT, which was the first satellite in the world built exclusively to serve the educational sector. EDUSAT is used to meet the demand for an interactive satellite-based distance education system for India.



6.6 FURTHER READING

1) Aggarwal, J. C. (1997). *Essentials of Educational Technology: Teaching-Learning Innovations in Education*. New Delhi: Vikash Publishing House Pvt. Ltd.



6.7 ANSWERS TO CHECK YOUR PROGRESS

Ans. to Q. No. 1: Mass-media are means or instruments of communication that reach large number of people with a common message. The media include those which use modern means of communication such as radio and television film, the press, publication and advertising.

Ans. to Q. No. 2: Modern mass media like newspapers, cinema, and television, drama, local meetings, and traditional media of social communication like post, telegraphs, teleprinters & telephones.

Ans. to Q. No. 3: Radio broadcasts started in India in 1927.

Ans. to Q. No. 4: Radio is the most popular mass-media in our country.

Ans. to Q. No. 5: In India in 1927, Radio broadcasts were started with two privately owned transmitters situated at Bombay and Calcutta. The Government of India took them over in 1930 and started operating them under the name of Indian Broadcasting Service. In1936, the name of the service was changed to All India Radio (AIR).

All India Radio's network consisted of six radio stations in 1947. Now there are more than hundred stations. These hover around all the important cultural and linguistic regions of the country.

All India Radio has the main responsibility for programme generation and the programmes are made in consultation with the government. Special committees on education, agriculture, health and family planning identified their own programme priorities and conveyed it to AIR.

Ans. to Q. No. 6: The full form of ETV is Education Television

Ans. to Q. No. 7: The ITV programmes are meant for adult audiences, mainly to those who were illiterate.

Ans. to Q. No. 8: The Satellite Instructional Television Experiment.

Ans. to Q. No. 9: The Satellite Instructional Television Experiment or SITE was an experimental satellite communications project which was launched in India in 1975, designed jointly by NASA and the Indian Space Research Organization (ISRO).

The basic purpose of the project is to make available information through the television programmes to rural India. The main objectives of the experiment is to educate the poor people of India related to the various issues such as family planning, agricultural practices and national integration etc.



6.8 MODEL QUESTIONS

A) Very Short Questions (Answer each question in about 50 words)

Q.1: What do you mean by mass media?

Q.2: How do you define mass media?

Q.3: Why is mass-media important in education?

Q.4: Why do you think that radio is the most popular media for spreading education in our country?

Q.5: What do you mean by ETV?

B) Short Questions (Answer each question in about 150 words)

Q.1: Why do you think that lanquage is important for communication?

Q.2: Explain the role of broadcasting radio in India.

Q.3: Explain the role of Television in India.

Q.4: What do you mean by SITE? Explain its educational implications.

C) Long Questions (Answer each question in about 300-500 words)

Q.1: What are the different types of mass-media? Explain the role of mass-media in education.

Q.2: Discuss radio broadcasting ,TV and SITE as mass-media.

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UNIT 7: TEACHING-LEARNING AND EDUCATIONAL TECHNOLOGY

UNIT STRUCTURE

7.1 Learning Objectives

7.2 Introduction

7.3 Concept of Teaching-Learning Process

- 7.3.1 Important Aspects of the Teaching-Learning Process
- 7.3.2 Role of Educational Technology in Teaching-Learning Process.
- 7.3.3 Importance of Educational Technology for Teacher.

7.4 Let Us Sum Up

7.5 Further Reading

7.6 Answers to Check Your Progress

7.7 Model Questions

7.1 LEARNING OBJECTIVES

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

- explain the concept of teaching-learning process
- identify the important aspects of the teaching-learning process
- describe the role of educational technology in teaching learning process
- illustrate the importance of educational technology for teachers.

7.2 INTRODUCTION

After having acquianted yourself with the various aspects of educational technology in the foregoing units you will learn in this unit about the concept of teaching-learning process, the role of educational in teaching learning process, important aspects of teaching learning process,and the importance of educational technology for Teachers.

Teaching-learning process is a means through which the teacher, the learners, the curriculum, and other variables are organised in a systematic

manner to attain pre-determined goals and objectives. With the knowledge of educational technology, it is the teacher who determines the plans and programmes of education which can achieve the best results. Let us discuss this topic in this unit in detail.

7.3 CONCEPT OF TEACHING LEARNING PROCESS

In olden days learning was considered a unilateral activity of the teacher. Teaching was treated as a great art and teacher was supposed to be the owner of that art by birth. Accordingly, it was maintained that a teacher was born and not made. The old system of teacher-dominated education gave more importance to teaching-learning as a self-activity on the part of the learner himself.

The traditional explanation of the term 'teaching' which equates teaching with telling, is not acceptable to the educators of today because the recent research in the field of psychology of teaching-learning has thrown light on some new concepts of teaching. The old concept of teaching as giving of information has been completely discarded. In a traditional society, the aim of teaching-learning was the preservation of the accumulated stock of knowledge. But in the modern society, the main aim of teaching- learning is not acquisition of knowledge alone; it is also the awakening of curiosity, the development of proper interests, attitudes, and values. Teaching learning process has to serve as a powerful instrument of social, economic and cultural transformation of the society. Teaching-learning process is conditioned by the nature and demands of society to which the learners should get adapted. One of the main aims of teaching-learning in the modern society is to keep pace with the advancement of knowledge and skills. According to the changed concept, teaching is to cause the child to learn and acquire the desired knowledge, skills and also the desirable ways of living in the society. The main aim of teaching is to help the child to respond to his environment in an effective way. According to B. Smith– ‘‘Teaching is a system of action intended to induce learning.’’

Teaching-learning process is a means whereby society trains its young ones in a selected environment (usually the school) as quickly as

possible to adjust themselves to the world in which they live. If the teaching learning process is effective, then the child is able to make the best use of the things in the world around him. If a child has not learnt the art of living harmoniously with others he will find himself beset with more difficulties than the person who has learnt how to establish social relations with his fellow beings. So, the acquisition of knowledge, skills, and attitude which enable us to adjust ourselves in an effective manner to the environment may be said to be the aim of teaching learning.



LET US KNOW

- Teaching-learning processes a means through which the teacher, the learner, the curriculum and other variables are organised in a systematic manner to attain some pre-determined goal.
- Teaching-learning process has four aspects - teacher, student, learning process and learning situation.
- Teaching is a process of imparting knowledge and developing understanding.

7.3.1 Important Aspects of Teaching Learning Process

Teaching and learning are inter-linked.We can not think of teaching without learning. The teacher teaches and the students learn. For making teaching-learning sound and effective in our educational institution, we must look into its various aspects very carefully. Following are its chief aspects–

- **Command, planning and organisation of the subject matter or content:** There are no two opinions about the important factor that the success of the teaching learning process greatly depends upon the thoroughness of knowledge of the subject matter to be taught by the teacher. The soul of effective teaching-learning is the good command of the subject matter on the part of the teacher.

The next aspect is that in order to present the subject matter to the class the teacher should motivate the students to develop proper habits of learning. The teacher should stress self-learning on the part of the students.

- **Class-control and discipline:** Appropriate class control and enforcing discipline is one of the most important characteristics of a successful teacher. A good teacher is one who controls his class not through instilling fear into the students but by virtue of his interest in the learner, good command on the subject matter and his ability to present it interestingly and effectively. The learners also appreciate good teaching and co-operate with the teacher in the teaching-learning process.
- **Understanding the Psychology of the learner:** It must be realized by a teacher that adequate knowledge of the subject matter, his ability to present it methodically and effectively and his ability to control the class situation ably are the indicators of an effective teaching-learning process. A teacher must understand the psychology of his learners and encourage them. He has to be sincere and honest towards his learners. An ideal teacher is always humble. He has to practise tolerance and patience in dealing with the learners. The participation of the learners is very important and necessary if the teaching learner has to have a broader and meaningful process.
- **Evaluation:** Evaluation has an important place in the teaching learning process. A teacher should carefully evaluate his students to find out how they can make more progress. He may use a variety of methods for this purpose such as:
  - Lecture Method
  - Discussion Method
  - Project Method



CHECK YOUR PROGRESS

Q.1: Discuss briefly the concept of teaching learning process. Write within 50 words.

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Q.2: Mention any one difference between traditional teaching-learning process and the modern teaching-learning process.

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Q.3: Mention the chief aspects of teaching-learning process.

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Q.4: Write 'yes' or 'no' against each statement–

a) Teaching-learning should be purposive.

b) Interaction is the heart of the teaching-learning process.

c) Evaluation has no place in the teaching learning process.

7.3.2 Role of Educational-Technology in Teaching-Learning Process

Teaching learning process is influenced by the totality of the situation. Teaching-learning is fruitful and permanent if the total situation is related to life situation. The process of teaching-learning is as old as human beings on earth. This process has been going on from the ancient times in order to enable the young ones to adjust themselves successfully with their environment.

Teaching as conventionally understood by a traditional teacher is the act of disseminating information to the learners in the classroom. The teacher performs both the activities of ‘‘telling’’ and ‘‘teaching’’ which are two different concepts. ‘‘Telling’’ is the activity, undertaking by the teacher when he tells or passes on the information to the students in the classroom for 200 to 220 working days in a year irrespective of their ability to receive the same or not. But ‘‘teaching’’ is an interactive process between the teacher and students, in which there is scope for discussion and understanding between the two.

We all know that the Gurukul system was prevalent in ancient times as a system of education in which the teaching-learning process consisted of Guru (teacher) and his disciples (learners). This system gave way to the modern class room system and a lot of changes have occured everchange. While in the past the single teacher used to teach many subjects to a few students, now a single teacher norm has largely been done away with and the very concept of teaching has consequently undergone changes. Let us quote L. William in this connection, William says that– “Teaching is an art so great and so difficult to master that a man or a woman can spend a long life at it, without realising much more than his limitations and mistakes and his distance from the ideal.’’ Whether it is traditional method or the modern method it is a acknowledged fact that education involves a process in which each stakeholders-the teacher, the learners, the curriculum and the community shares a major responsibility for its success.

Technology is the application of scientific knowledge for practical purpose where addressing specific problem. We use technology as a means to meet the needs of the individual or the society. The field of technology varies widely from simple innovations like a mini calculator to sophisticated gazzetts. In education, technology is being used now-a-days more and more frequently in order to improve the quality of teaching and learning. Educational

technology enhances the pace of learning and accelerates the quality of teaching, thereby justifying each increasing use in the teaching-learning process.

7.3.3 Importance of Educational Technology for Teachers

It is true that technology can do a number of teaching functions quite effectively but this does not imply that it can diminish the role of the teacher. Even when education is imparted through technology, the teacher is very much there in the use of educational technology because it is the teacher who determines the objectives of education and plans programmes which can achive best results. He develops the appropriate education; content and determines the process, the process by which the content is to be conveyed to the students. He monitors the progress of the students and evaluates their achievements with reference to the objectives and modifies the programme if needed. Functions like planning, organising, operating, evaluating and explaining the educational programmes in which technology may play an important role are performed by the teacher and other educational personnel.Teaching learning is fruitful and permanent if the total situation is related with life situation.



LET US KNOW

- Teaching is an interaction between the teacher and the students, which offers some scope to both for discussion understandingly.
- In the use of educational technology, it is the teacher who determines the objectives of education and plans programmers which can achieve the best results.



CHECK YOUR PROGRESS

Q.5: How does the knowledge of educational technology help a teacher in imparting education to his students? Write within 40 words.

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Q.6: Write short notes on: ‘‘The Role of Educational technology in teaching-learning process.’’

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Q.7: Say whether the following is ‘true’ or ‘false’:

a) Teaching learning has no relation with life situation.

b) Use of technology makes the role of teacher secondary.



ACTIVITY 7.1

How can you become an effective teacher? State three measures you will take to become an effective teacher.

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7.4 LET US SUM UP

- Teaching learning process is the interaction between the student and the teacher. Teaching-learning has four aspects such as– teacher, student, learning process, and learning situation.
- Teaching and learning are inter-linked. We can not think of teaching without learning.
- The success of the teaching learning process greatly depends upon the thoroughness of knowledge of the subject matter to be taught by the teacher.
- Appropriate class control and enforcing discipline is one of the most important characteristics of a successful teacher.
- A teacher has to be sincere and honest towards his learners.
- A teacher should carefully evaluate his students to find out how they can make more progress.
- Teaching-learning process is influenced by the totality of the situation.
- Educational technology plays an effective role in improving the quality of teaching and learning.
- In the use of educational technology it is the teacher who determines the objectives of educational plans and programmes which can achieve best results.
- One of the main aims of teaching-learning in the modern society is to keep pace with the advancement of knowledge and skills.



7.5 FURTHER READING

1) Sharma, Dr. A. R. (2005). *Educational Technology*. Agra: Vinod Pustak Mandir.

7.6 ANSWERS TO CHECK YOUR PROGRESS

Ans. to Q. No. 1: Teaching-learning process is a means whereby society trains its young ones in a selected environment (usually the school) as quickly as possible so that they can adjust themselves in the world in which they live. If the teaching learning process is effective, then the child is able to make the best use of the things in the environment around him.

Ans. to Q. No. 2: In a traditional society the aim of teaching-learning was the preservation of the accumulated stock of knowledge. But in the modern society, the main aim of teaching learning is not acquisition of knowledge alone.

Ans. to Q. No. 3: The chief aspects of the teaching learning process are : command planning and organisation of the subject, class-control and discipline, psychology of the learner and evaluation.

Ans. to Q. No. 4: a) Yes, b) Yes, c) No

Ans. to Q. No. 5: The teacher's role in any educational system is a pivotal one. It is the knowledge of educational technology that helps the teacher in many ways. It is the teacher who determines the objectives of education and developes the appropriate educational content.

Ans. to Q. No. 6: Technology is the application of scientific knowledge for practical purpose where addressing specific problem. Generally, technology is used to meet the needs of the individual or the society. In education, technology is being used now-a-days more and more frequently in order to improve the quality of teaching and learning. Educational technology enhances the pace of learning and accelerates the quality of teaching.

Ans. to Q. No. 7: a) False, b) False



7.7 MODEL QUESTIONS

A) Short Questions (Answer each Question in about 150 words)

Q.1: Explain the concept of teaching-learning process.

Q.2: What is the importance of educational technology for the teachers?

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

Q.1: Discuss the differences between traditional teaching-learning process and the modern teaching-learning process.

Q.2: Elaborate on the importance of educational technology for the teachers.

Q.3: Explain teaching-learning process as a three-way communication. Discuss the important aspects of teaching learning process.

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UNIT 8: SYSTEM APPROACH IN EDUCATIONAL TECHNOLOGY

UNIT STRUCTURE

8.1 Learning Objectives

8.2 Introduction

8.3 Definition of a System

8.3.1 Concept of a System Approach in Educational Technology

8.3.2 Components of an Instructional System

8.3.3 Advantages of System Approaches

8.3.4 Instructional Kits for Teaching and Role of the Teacher in the System Approach.

8.4 Let Us Sum Up

8.5 Further Reading

8.6 Answers to Check Your Progress

8.7 Model Questions

8.1 LEARNING OBJECTIVES

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

- identify the concept of system approach in educational technology
- define the various definitions of a system
- explain the steps involved in the system approach
- identify the different components of an instructional system and instructional kits for teaching.

8.2 INTRODUCTION

The System approach is a relatively a new approach that has emerged in the field of education for managing its affairs. Historically, the concept of system approach emerging during world war II as a result of research and development in context with the couple man machine system. Gradually it was applied in the areas of industry and management. In the recent years, it has been introduced in the field of education. Let us try to understand the meaning and definition of system approach, steps involved in this approach and components of intructional design etc.

8.3 MEANING AND DEFINITION OF A SYSTEM

The term 'System' is derived from the Greek word 'Systema' which means an organized relationship among functioning units or components. We come into daily contact with the transportation system, the telephone system, the accounting system, the production system and for over two decades the computer system. Similarly we talk of the business system and of the organization as a system consisting of inter-related departments such as production, sales and an information system. None of these sub-systems is of much use as a single independent unit. When they are properly co-ordinated, however the firm can function effectively and profitably. Let us try to understand this term in the light of some definitions given below:

- **R. H. Ack of (1971)** –"A system is the set of inter-related and interdependent elements."
- **Bert Alanffy (1951)** –defines a system as "Any arrangement or combination as of parts or elements in a whole."
- **Crawfored Robb (1973)** –"System is a systematice organisation of the elements that operate in a unique way."
- ***The advanced Learner's Dictionary of current English*** –defines a system as "Group of things or parts working together in a regular relation."

On the basis of the above definitions the characteristics of a system may be summarised as below:

- A system has various elements or units or parts.
- In a system the different elements or parts are interrelated to each other and works interdependently.
- Each system, unless it is very small, has sub-system(s).

8.3.1 Concept of a System Approach in Educational Technology

The latest concept of educational technology is influenced by the concept of system approach. System approach is based on the principle of organization of different parts of any system. The

System Approach helps in designing a complex system by the efficient use of resources in the form of men, money, material and machine to achieve the desired goal in the most efficient manner. Let us look at the following system model of the educational process.

INPUT		OUTPUT
● HUMAN RESOURCES ● STUDENTS ● INFORMATION ● FINANCIAL RESOURCES ● TECHNICAL RESOURCES	**Educational Process** for optimum assimilation of knowledge and skills for increasing learning efficiency	● STUDENTS WHOSE PERFORMANCE HAS BEEN IMPROVED IN SPECIFIC AREAS

(The "system" model of the educational process)

System approach is an educational tool developed to make the educational adventure more flexible, holistic, logical, orderly, disposible rather than undefinable and ordered. System approach as applied to education is a rational problem solving method of analysing the educational process taken as a whole in corporating all of its parts and aspects, including the students and teacher, the curriculum content, the instructional materials, the instructional strategy, the physical environment, and the evaluation of instructional objectives. As is evident from the above diagram, the input to an educational system consists of human resources, students, information, financial resources, technical resources. The output consists of people whose performance has improved in some desired way. The output is improved through increasing the efficiency of educational process for enabling the optimum assimilation of knowledge and skills to occur during the educational process and hence to maximize the quality of the output.



LET US KNOW

➢ The term 'System' is derived from the Greek word 'Systema' which means an organized relationship among functioning units components.

- A system is the set of inter-related and inter-dependent elements.
- System approach is based on the principle of organisation of different parts of any system showing the relationship between the parts and the whole.



CHECK YOUR PROGRESS

Q.1: What is a system? Write within 30 words.

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Q.2: Write within 50 words on the system approach as applied to education or system approach in education.

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8.3.2 Components of an Instructional System

System approach is a systematic attempt to co-ordinate all aspects of a problem toward specific objective. In education, this means planned and organised use of all available learning objectives by the most efficient means possible. The system approach focuses first upon the learner and the performance required of him. Only then it makes decisions regarding the course content, learning experiences and the most effective media and instructional strategies. It is concerned with all elements of instructional resources including media.

A) Procedural Steps in System Approach: The procedural steps in the system approach in education are as follows:

- Defining instructional goals, behavioural objectives and stating them in operational measurable terms.

- Determining functions related to the achievements of these goals by proper aids like films, recordings, video-tape etc.
- Defining learner characteristics and requirements.
- Choosing appropriate methods suitable for effective learning of the topic.
- Selecting appropriate learning experiences from many alternatives available.
- Selecting appropriate materials, facilities, equipment, resources, environment, tools required for student experiences.
- Defining and assigning appropriate personal roles teachers-student.
- Implementing the programme– try with a few pupils in typical and appropriate condition.
- Testing and evaluating the out come in terms of original.
- Refining and revising if necessary to improve production and efficiency of the system to improve student learning.

b) Components of an instructional system are:

- Stating instructional objectives which helps system designer to decide what to teach.
- Pupils.
- Teachers.
- Content.
- Determining the optimum learning conditions to attain instructional objectives i.e. analysis, keeping in mind the entry behaviour of the learners.
- Deciding upon the instructional strategy and media, and
- Conducting evaluation.

Now let us discuss this in more detail:

In an Instructional system the teacher or instructor and the resource made use of by him are included as components of the system. There is provision for continuous evaluation and self correction for releasing the stated objectives. In the system approach to instruction, the teacher has to plan completely the utilisation of

selected resource material and the class room activities (each pupil working alone; small groups of pupils of 4 to 6 working alone or with teacher guidance; large groups working alone very large groups requiring the use of the mass communication media) The teacher should have a good overall view of the subject, should know his/her limitations know all about his/her pupils and the individual differences in their learning capacities and plan accordingly. The systems approach involves continuous of the learning of learning out-comes and the utilisation of the knowledge gained by the analysis of the result of evaluation. It also involves suitable modification of the plan of approach to achieve the stated objectives.

For maximum effectiveness, it is necessary to consider the system as a whole, remembering the interaction and interdependence of the components of the system. Full details and specifications about the interacting factors should be clearly defined. The System approach in education may be applied to institutional planning and development in its varied aspects (macro level) or it may be used at the classroom level with its concern for a specified topic during a brief period (micro level).

Curriculum objectives in terms of anticipated change in student behaviour should be well defined. Teacher and pupils should know what is expected upon the completion of an instructional unit. The evaluation should aim at reflecting pupils' skills, knowledge and concept developed through available teaching materials and the teacher. Based on the evaluation result more appropriate instructional materials and teaching strategies could be selected to ensure the achievement of the stated objectives. It may be necessary also to change the prescribed entry behaviour of input based on the result of evaluation. The curriculum should be modified if product is not suitable to fill in the need.

The following Figure 8.1 and Figure 8.2 explain the various components or aspects of the instructional system:

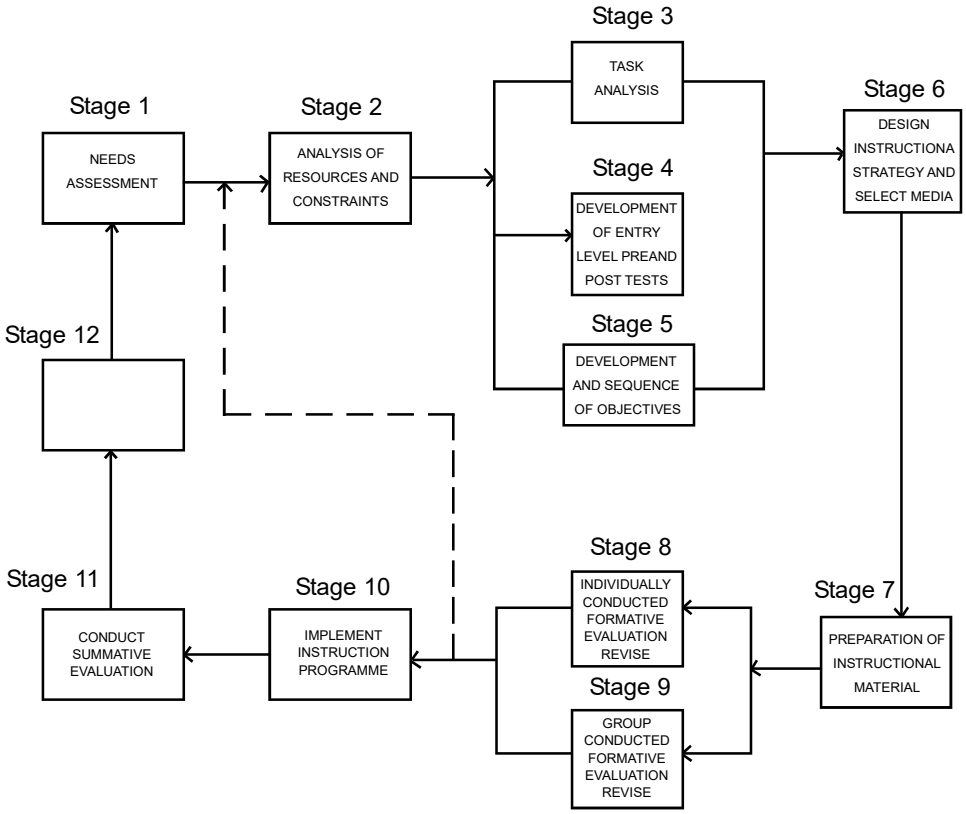


Fig. 8.1: Model of the Instructional System

Source: Aggarwal, J. C. (2005). P. 288

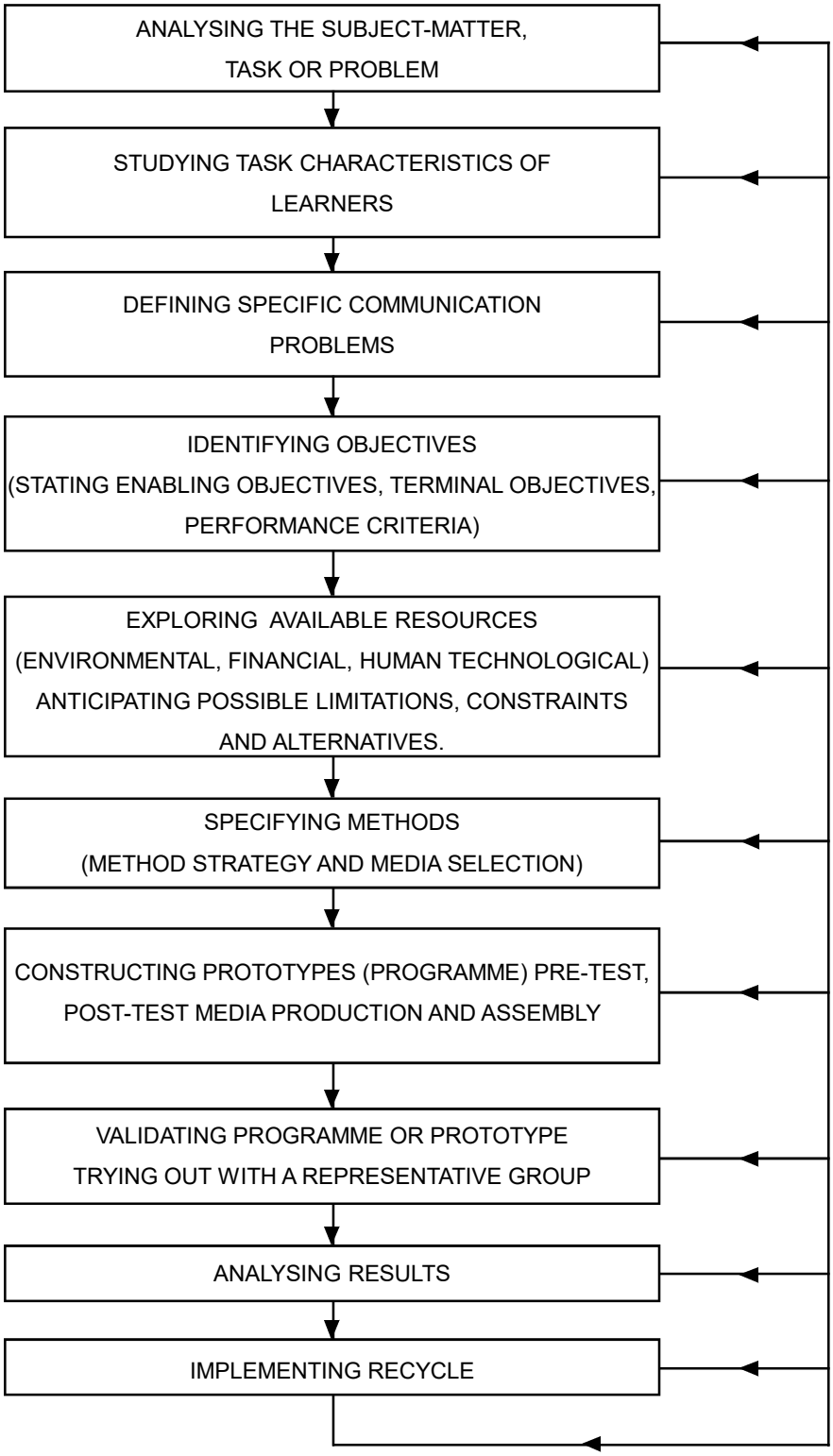


Fig. 8.2: Flow Chart Showing in Detail the Path Followed at the Instructional System

Source: Aggarwal, J. C. (2005). P. 289

The following example will show in detail with a flow diagram the path to be followed by teacher at the instructional level. The diagram indicates all the major components of the system and shows the paths that may be followed by the teacher while proceeding through each step of the process. The flow chart is an abstract graphic model of the process. This helps to visualise the system at the planning or design stage.

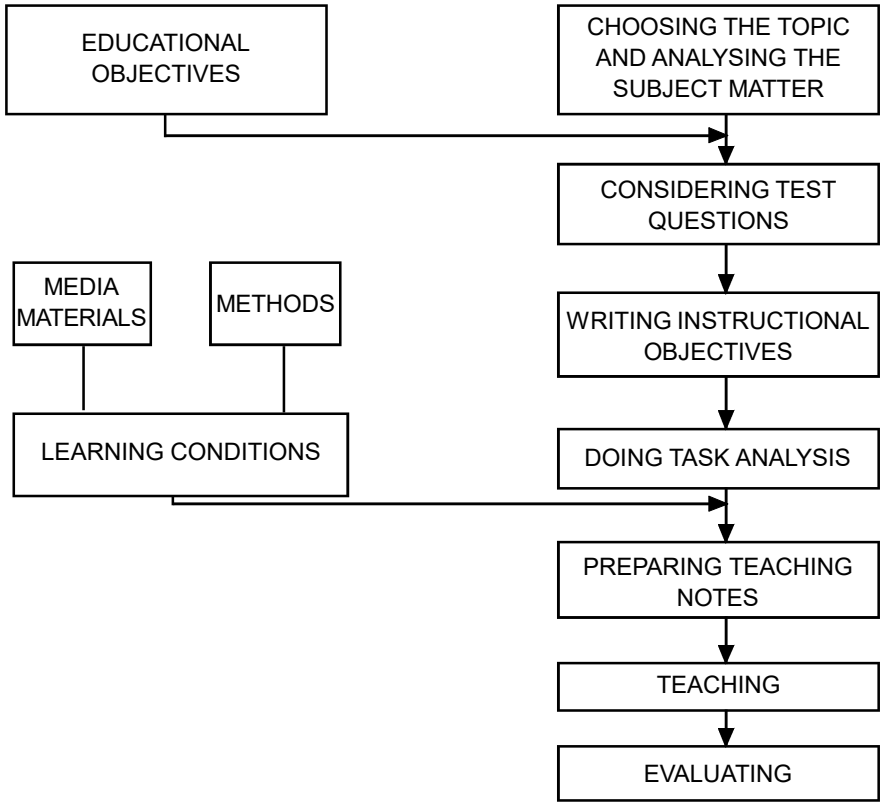


Fig. 8.3: Flow Chart Showing in Detail the Path Followed by a Teacher in an Instructional System

Source: Aggarwal, J. C. (2005). P. 242



LET US KNOW

The procedural steps in the system approach in education are–

- Defining instructional goals of the course.
- Finding out the range of backgrounds, interests, attitudes and understanding of the students.

- Choosing appropriate methods suitable for effecting learning of the topic.
- Determining the strength and weaknesses of the course.
- Updating the course.
- Restarting the course.
- An Instructional system includes as a component of the system, the teacher or instructor and the resources, the content etc. made use of by him.



CHECK YOUR PROGRESS

Q.3: Mention any five procedural steps involved in the system approach?

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Q.4: Mention any four components of an instructional system.

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Q.5: Fill in the blanks:

a) The system approach focuses first upon ..... and the performance required of him.

b) The System Approach is concerned with all elements of ..... including media.

8.3.3 Advantages of System Approaches

- It provides a conceptual frame work on which to build plans for implementing change for education.

- It helps to identify the suitability or otherwise of the resources material to achieve the specific goal.
- It helps to assess the resource needs, their sources and facilities in relation to quantities, time and other factors.
- It assists in making use of technological advance to provide integration of machines, media and people for attaining the defined goals.
- It permits an orderly introduction of components demonstrated to be required for system success in terms of student learning.
- Rigidity in plan of action is avoided as continuous evaluation to be made for the desired beneficial changes.

8.3.4 Instructional Kits for Teaching and the Role of the Teacher in System Approach

Good kits are really packaged mini-systems. They usually contain a variety of systematically related materials and may include motion picture, slides or film strips, cassette tapes, photographic pictures, specimens models either commercially prepared, apparatus, guide sheets, programmed materials and testing materials for the teacher and students on the topic or the unit. Although the kit provide the necessary and ready-made materials for the teacher, the teacher must always be on the look out to select a variety of materials for conveying information suitable to each learner. If necessary he must revise the materials or devise his own to suit his classroom setting. Multi-media packages may contain all resources needed to provide learning in a specific area. The use of instructional material included in the package is carefully planned to promote the desired learning outcomes and to realise the set-objectives. The materials are evaluated for their effectiveness in their specific use in the classroom.

As a matter of fact, the best teachers have always done something of the sort of the system approach. A system oriented teacher does the following–

- The teacher should thoroughly assesses the inputs of his system.
- He/she collects the available data about his subject matter.

- The teacher first determines the objectives to be achieved and then thinks of alternatives processes to translate them into well-defined learning tasks.
- The teacher activates the system by putting the plan into action.
- Gathers feedback data accordingly and systematically.
- Modifies the system's components and process based on the feedback.
- Assesses the effectiveness of the system by comparing the outputs with the inputs.



CHECK YOUR PROGRESS

Q.6: Mention any two advantages of the System approach.

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Q.7: Fill in the blanks:

a) A system oriented teacher thoroughly assesses the ..... of his system.

b) A system oriented teacher activates the system by putting the ..... into .....



ACTIVITY 8.1

"Teachers have always done something of the sort of systems approach." –Explain this statement in the context of modern system of educational instruction.

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8.4 LET US SUM UP

- A system is the set of inter-related and inter-dependent elements.
- System approach is based on the principle of organisation of different parts of any system showing the relationship between the parts and the whole.
- The procedural steps in the system approach in education are- defining instructional goals of the course, finding out the range of backgrounds, interests, attitudes and understanding of the students, choosing appropriate methods suitable for effecting learning of the topic etc.
- The advantages of the system approach are: (i) It provides a conceptual frame work on which to build plans for implementing change for education. (ii) It helps to identify the suitability or otherwise of the resources material to achieve the specific goal etc.



8.5 FURTHER READING

1) Awad, M. Ellas. *System Analysis and Design*. New Delhi: Golgotia Publications (P.) Ltd.



8.6 ANSWER TO CHECK YOUR PROGRESS

Ans. to Q. No. 1: A system may be defined as a dynamic, complex, integrated whole consisting of self-regulating pattern of inter-related and inter depended elements organised to achieve the predetermined and specified objectives.

Ans. to Q. No. 2: System approach as applied to education is a rational problem solving method of analysing the educational process taken as a whole in corporating all of its parts and aspects, including the students and teacher, the curriculum content, the instructional

materials, the instructional strategy, the physical environment, and the evaluation of instructional objectives.

Ans. to Q. No. 3: The five procedural steps involved in the system approach in education are–

- Defining instructional goals of the course.
- Finding out the range of backgrounds, interests, attitudes and understanding of the students.
- Choosing appropriate methods suitable for effecting learning of the topic.
- Determining the strength and weaknesses of the course.
- Updating the course.

Ans. to Q. No. 4: The four components of an instructional system are –

- Stating instructional objectives which helps system designer to decide what to teach.
- Pupils.
- Teachers.
- Content.

Ans. to Q. No. 5: a) The learner, b) Instructional resources

Ans. to Q. No. 6: In education, System approach helps in many ways:

- It provides a conceptual frame work on which to build plans for implementing change for education.
- It helps to identify the suitability or otherwise of the resources material to achieve the specific goal.

Ans. to Q. No. 7: a) Inputs, b) plan, action.



8.7 MODEL QUESTIONS

A) Very Short Questions (Answer each question in about 50 words)

Q.1: What is menat by the system approach?

Q.2: How would you like to define a system approach?

Q.3: What are the characteristics of a system approach?

Q.4: Explain system approach in education.

Q.5: Mention any four components of an instructional system.

B) Short Questions (Answer each question in about 150 words)

Q.1: What are the procedural steps of the system approach?

Q.2: What are the advantages of the system approach?

Q.3: ‘‘Instructional kits are important in teaching.’’ Justify.

C) Long Questions (Answer each question in about 300-500 words)

Q.1: Explain the term Systems approach. How can the system approach be applied to education?

Q.2: How does system approach help in teaching? What are the steps in systems approach?

Q.3: Discuss the importance of instructional kits in teaching.

Q.4: Discuss the role of the teacher in system approach.

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