MA (Education)
3rd Semester

Course Code: EDUCC 109
Course Type – Core

ESSENTIALS OF EDUCATIONAL TECHNOLOGY

Dr. Pradeep Singh Dehal
Sh. Rajesh Kumar Sharma

Centre for Distance and Online Education
Himachal Pradesh University
Summer Hill, Shimla, 171005

Contents

Unit No.	Title of Unit	Page No.
1	Introduction to Educational technology and Communication	3
2	Different between Technology of Education and Technology in Education Phases of education technology evolution	8
3	Scope of educational technology. Hardware and Software aspects of educational technology	15
4	Role of educational technology in modern educational practices The role of hardware and software technology in the modem educational practices	22
5	E-mail, Teleconferencing & Interactive video, Wiki, Blog, Social Networking and Levels of teaching	29
6	Interactive video, Wiki, Blog, Social Networking	43
7	Levels of teaching	54
8	Stages/Phases of Teaching	63
9	Models of Teaching	72
10	Models of Teaching	82
11	Instructional Strategies: Student-Centered & Teacher-Centered Strategies	93
12	Self-Instructional Programme	104
13	Language Laboratory and its use in Development of Linguistic Skills	110
14	Micro -Teaching: Meaning, Procedure, Merits and Limitations	116
15	Components of skill of teaching	123
16	Flander's Interaction and Simulated Teaching	130
17	Micro -Teaching: Merits and Limitations	135
18	Components of skill of teaching	141
19	Flander's Interaction	149
20	Simulated Teaching	157

Unit-1 : Introduction to Educational Technology and Communication

Structure:

1.1 Introduction

1.2 Learning Objectives

1.3 Meaning and Concept of Educational Technology

Self Check Exercise-1

Self Check Exercise-2

1.4 Characteristics and importance's of Education Technology

Self Check Exercise-3

1.5 Summary

1.6 Glossary

1.7 Answers to self check exercise

1.8 References and suggested readings

1.9 Terminal Questions

1.1 Introduction:

In spite of the psychological resistance and economic difficulty, one thing is clear that technology is creeping in to our economic and productive spheres of life. Radio has gone in to villages, television came to peoples approach and industries are demanding large number of persons trained for specific and technical jobs. Some of the industries have started their own apprentice courses. These training establishments in industries which are not only familiar with industrial technology but also have arisen from its demand for trying to adopt new educational technology in their training system. Before the sixties, the term educational technology was largely associated with audio-visual aids and teaching materials to classroom instruction. For most of the teachers and teacher -educators, by and large, the term conveyed a meaning of technology in education. Thus the concept of educational technology has developed during last few years, it is a new area in discipline of education like: educational psychology, educational philosophy, educational measurement and evaluation. It makes a functional analysis of teaching learning process and located various components that operate from the stage of input to that of the output.

Recently, National Council of Educational Research and Training (NCERT) realized its importance in the area of education and have established a Centre of educational technology (CET).

1.2 Learning Objectives:

After studying this unit the students will be able to know about:

- The meaning and concept of educational technology.
- Characteristics and Importance's of Education Technology.

1.3 Meaning and Concept of Educational Technology:

The word educational technology can be derived from the words education and technology. We will discuss one by one as under:-

Education: - The word education has its origin in the latin word educatum composed of two terms E and DUCO. E implies a progress from inward two outward. DUCO means developing or progressing. In most literal sense, therefore education means becoming developed or progressing from inside to outside. Education thus is the process of developing the inner abilities and powers of an individual. The term is also connected with the latin 'educare' meaning a propulsion from-the internal to the external. This term means through a change brought about by practice. In this manner, education implies some kind of change for the batter in a person. Education is the stepping stones towards social, economic and political empowerment. Some psychologists say that in the word educate 'E' means out of and ducate means 'to lead' that are to lead further to extract out of the best in man. Addision says when education works on a noble mind it draws out to view every latent virtue and perfection. Mahatma Gandhi supports these views and says, "by education I means all round drawing out of the best in the child and man - body, mind and spirit" So education is that source by which the knowledge of cultural store house can be transferred from one generation to another.

Technology: - Technology is that branch of advanced scientific study which involves highly designed and sophisticated engineering - software and hardware. It is the science of industrial arts and applied sciences and engineering. It is deals with the application of the knowledge for practical ends. H.J.Leavit defines technology as a problem solving invention. It cannot be denied that the application of the science and technology has resulted in a tremendous improvement in the quality of things. Take for example the houses, long back man lived in thatched houses with mud walls. But now he lives in skyscrapers with glossy walls, ceilings and floors. This is possible because of cement and other modern building materials, all of which have been developed by the application of the principle of science and technology.

Educational Technology: -Educational Technology is a new area in the discipline of education like: educational psychology, educational philosophy, educational measurement and evaluation. It makes a functional analysis of the teaching leaning

process and locates the various components that operate from the stage of input to that of the output. NCERT realized its importance in the area of education and has established a centre of education technology (C.E.T). Educational technology can be conceived as a science of techniques and methods by which education goals can be realized. It is not concerned with the task of prescribing the goals. Although it does helps in specifying the goals and translating them in to behavioural terms. The second meaning of educational technology is the mechanization of educational process.

The mechanization is being done in all the three phases of human knowledge very rapidly i.e. Preservation of knowledge, transmission of knowledge and advancement of knowledge. A few decades back the concept of educational technology was confined to the use of a variety of teaching aids in the classroom such as charts, maps, models and pictures in order to make the teaching - leaning process interesting as well as effective. But now the terms educational technology means the use of sophisticated electronic gadgets like OHP, slide projector, films and films strip projector, radio, television, video camera and even the satellite in the teaching leaning activities. In the last we can say that educational technology is the development, application and evaluation of system, techniques and aids to improve the process of leaning.

Robert A. Cose, The process of educational technology is tool for development."

Mitra, “Educational technology can be conceived as a science of techniques andmethod by which educational goal could be realized.”

Kulkarni, "Educational technology may be defined as the application of the laws aswell as recent discoveries of science and technology to the process of education.”

Self Check Exercise-1

Q-1: Define the term education.

Q-2: What do you mean by technology?

Q-3: Discuss the term educational technology.

National Policy of Education

"Educational technology offers the means to reach large numbers in remote and inaccessible areas remove disparity in educational facilities available to the disadvantaged and provide individualized instruction to learners conveniently suited to their needs and pace of learning.”

On the basis of meaning and some definitions the term educational technology may be stated as: "Educational Technology implies a behavioural science approach to teaching and learning in that it makes use of pertinent scientific and technological methods and concepts developed in psychology sociology, communications, linguistic and other related fields. It also attempts to incorporate the management principles of cost effectiveness and the efficient development arid use of available resources like men and materials. It involves media, methods, equipment and resources."

Conclusion

It can be concluded that educational technology is the systematic application of science and technology in the field of education. It is concerned with the input, output and process aspects of education. It involves the formulation of learning objectives, developing appropriate strategies of teaching and designing evaluation techniques.

Self-Check Exercise-2

Q-1: Discuss educational technology as a behavioural science approach.

1.4 Characteristics and Importance's of Education Technology:-

1. It includes input, process and output aspects of education.
2. It stresses upon developing method and techniques for effective leaning.
3. It is an application of scientific knowledge to education and training.
4. It includes organization and leaning condition for realizing the goals of education.
5. It emphasizes designing and measuring instruments for testing learning outcomes.
6. Educational technology is a fast developing modern discipline.
7. It is based on scientific and technological advancement.
8. It facilitates learning by controlling environment, media and methods.
9. It brings pupils, teachers and technical means together in an effective way.
10. It is a means to achieve an end, not an end in itself.
11. It is primarily a practical discipline and secondarily a theoretical one.
12. Educational Technology lays stress on the development of methods and techniques for effective teaching learning.
13. The major emphasis on the use of machines in teaching 'training and instruction, such as radio, television, computer etc.

14. Educational technology is the bridge between arts and science.

15. It facilitates the learning process by using media and strategies of teaching.

16. It is the extension of a teacher. A teacher is not limited to four walls of a classroom but he can reach to every corner of country.

17. It solves the basic problems of teaching learning process as well as organization and administration.

18. The feedback devices are also used for modification of teaching behavour.

19. It has reversed the Educational process. Now teacher is knocking at the door of students by the use of media.

20. It has evolved alternative system of education which is known as distance education, open learning and correspondence education.

21. It is the extension of a teacher. A teacher is not limited of four walls of a classroom but he can reach to every corner of country.

Self Check Exercise-3

Q-1: Write two characteristics of educational technology.

Q-2: What do you mean by Cybernetics?

Q-3: Who developed the teaching machine at first?

a) Thorndike b) B.F. skinner

c) S.Pressy (1926) d) All of the above

1.5 Summary:

The educational technology comes to see whether by a given process or situation the specified goals could be achieved, and if so to what extent, and if-not what changes are to be made in the process so as to achieve the specified goals?

It can be concluded that educational technology is the systematic application of science and technology in the field of education. It is concerned with the input, output and process aspects of education. It involves the formulation of learning objectives, developing appropriate strategies of teaching and designing evaluation techniques. Educations technology is an applied practical study. Its use has been explored in almost all the areas of teaching and learning. Some of the highlights of its use are:

1. Utilization of radio and television in education.

2. Telecast lesson and educational programmes.

3. Computer assisted instructions and language laboratories.

4. Utilization in correspondence courses through instruction material, personal contact programmes, student response sheets and telecast lessons.

5. Utilization in other modes of distance education.

1.6 Glossary:

1. **Operant**: an item of behaviour that is not a response to a prior stimulus but something which is initially spontaneous, which may reinforce or inhibit recurrence of that behaviour.

2. **Instructional material**: Instructional materials are the content or information conveyed within a course. These include the lectures, readings, textbooks, multimedia components, and other resources in a course.

3. **Telecast** – To broadcast to a television programme.

1.7 Answers to self check exercise:

Self check exercise-1

Ans-1: Education is the stepping stones towards social, economic and political empowerment. Some psychologists say that in the word educate 'E' means out of and ducate means 'to lead' that are to lead further to extract out of the best in man.

Ans-2: H.J.Leavit defines technology as a problem solving invention.

Ans-3: Educational technology may be defined as the application of the laws as well as recent discoveries of science and technology to the process of education."

Self check exercise-2

Ans-1: Educational Technology implies a behavioural science approach to teaching and learning in that it makes use of pertinent scientific and technological methods and concepts developed in psychology sociology, communications, linguistic and other related fields.

Self check exercise-3

Ans-1: Educational technology is the bridge between arts and science.

It facilitates the learning process by using media and strategies of teaching.

Ans-2: Cybernetics has been defined as the comparative study of the human control mechanism and electro-mechanical control system such as computer. The word cybernetic means steersman, which emphasizes the principle of feedback control.

Ans-3: S .Pressy (1926)

1.8 References and suggested readings:

De Cecco, John P. (1964)-Educational technology: Reading Programmed Instruction. Hall, New delhi.880pp

Bajpai, A.C. and Leedham, J.R. (1969)-Aspects of educational technology part 4 Pitman publishing Co. New York.

Sharma, R.A. (2001) Technological foundations of education, Meerut: R Lall Book Depot P792.

1.9 Terminal Questions:

1. Define the term educational technology and discuss its important characteristics.

2. Explain the concept of educational technology. How will you differentiate educational technology from instructional technology?

---///---

Unit-2

Different between Technology of Education and Technology in Education

Phases of Education Technology Evolution

Structure:

2.1 Introduction

2.2 Learning Objectives

2.3 Different between Technology of Education and Technology in Education

Self Check Exercise-1

2.4 Phases of education technology evolution

Self Check Exercise-2

2.5 Summary

2.6 Glossary

2.7 Answers to self check exercise

2.8 References and suggested readings

2.9 Terminal Questions

2.1 Introduction: Technology appears in six out of the ten targets in the fourth Sustainable Development goal on education. These references recognize that technology affects education through five distinct channels, as input, means of delivery, skill, tool for planning, and providing a social and cultural context. The 2023 GEM Report on technology and education explores these debates, examining education challenges to which appropriate use of technology can offer solutions (access, equity and inclusion; quality; technology advancement; system management), while recognizing that many solutions proposed may also be detrimental. Educational stages are subdivisions of formal learning, typically covering early childhood education, primary education, secondary education and tertiary education. The United Nations Educational, Scientific and Cultural Organization (UNESCO) recognizes nine levels of education in its International Standard Classification of Education (ISCED) system (from Level 0 (pre-primary education) through Level 8 (doctoral)). UNESCO's International Bureau of Education maintains a database of country-specific education systems and their

stages.[1] Some countries divide levels of study into grades or forms for school children in the same year.

2.2 Learning Objectives:

After studying this unit the students will be able to know about:

- Different between Technology of Education and Technology in Education
- Phases of education technology evolution

2.3 Different between Technology of Education and Technology in Education:

Technology in education emphasizes the concept of service like technology in the service of farming or agriculture or science in the service of mankind. It signifies the use of technology in education. It refers to the use of technological advancement in terms of various equipments, materials and machines for educational purposes. It involves audio-visual equipments, hardware and sophisticated electronics devices like radio, television, films, projectors, tape-recorders, teaching machines and computers-assisted instructions for individualized and group leaning. Education technology (technology of education), is not confined to the role of service as confined in the case of technology in education. It presents itself as a system for bringing improvement in the total process of teaching and learning by analyzing its results and reorganizing all available resources in an economical way for the best results.

Self Check Exercise-1

Q-1: How will you define technology in education?

2.4 Phases of education technology evolution:

The phases of education technology evolution are discussed as under:-

1. Audio- Visual Phase: There were various teaching aids like blackboard, maps, radio, films etc. These were mainly media through which a teacher presents his lesion. The materials develops were not systematically based on any psychological principles. Education was viewed primarily as a process of transmitting by a teacher,-the massages which he considered important, to students. In this transmission, he used aids which highlighted the massages. In as sense, this tradition started with printing technology-books, maps and charts etc. Although a good teacher in his transaction with students asked those questions etc and encouraged, interaction with them, aids like books, radio or films were primarily non - interactive.

2. Cybernetic Phase: The cybernetic tradition which lays emphasis on feedback is traced back to the Second World War where there was need for as systematic communication and control system. Cybernetics has been defined as the comparative study of the human control mechanism and electro-mechanical control system such as computer. The word cybernetic means steersman, which emphasizes the principle of feedback control. The feedback refers to a kind of reciprocal interaction between two or more events in which one activity generates a secondary action which, in turn redirects the primary action. The feedback system has three functions:-

(a) It generates movement of then system towards a target or in a defined path.

(b) It compared the effects of this action with the true path and detects error.

(c) It utilizes error signal to redirect the system.

In most of the industrial processes or machines which emerged during and after World War II, the concept of feedback became operational for correcting any deviant steps for example, in a refrigerator; the thermostat informs the system of cooling whether a certain temperature has been reached or not reached and instructs it to perform accordingly.

3. Psychology - Sociology based phase: This phase has long history. It can be traced back to the learning theory given by Thorndike in 1913. Based on this history, Pressy (1926) developed a teaching machine. It provides an automatic scoring device to the students on immediate so, this was the first step towards the formulation of systematic learning. B.F.Skinner provided the concept of operant conditioning. Their main contribution was that human behaviour can be shaped. Skinner said that animals or human beings would acquire any number of correct responses if a proper system of reward is arranged. These correct responses will form a behaviour pattern. On the bases of his experiments, Skinner predicted that the best way to teach an academic subject in the classroom would be to divide it into a number of small steps and to reward the mustering of each successive step. In addition to the contribution by this behaviorist psychology, cognitive psychology has also thrown more light on how learning takes place. Sociologists, particularly the school of group dynamics also added insights regarding how an individual learns in a group, through interaction with peers. In brief, the social sciences - psychology, sociology, anthropology have also contributed a lot to understand the teaching-learning process and in turn influenced educational technology.

4. Computer and Telecommunication Phase: Computer is finest and most important gift of the science and technology to the mankind. It has done miracles in almost all walks of life. Today there is no aspect of our life which has remains untouched with the use and application of computer A computer is said to an electronic brain. Multimedia, Email, internet are used extensively today. There are telecommunication modes through which instructional materials can be given to students. There are many computer software packages developed for school children in many of the school subjects. These packages also have been used and proved to the effective in terms of time and level of student's achievement. There are also several organizations established in different parts of the world for the development of software packages for example, in India we have Audio -

Visual research centers, educational media research centers and different departments of education and educational technology which have been developing software packages for the education of children. These packages are based on immediate feedback principles which help students to learn effectively. In edition many of these packages are interactive.

Self Check Exercise-2

Q-1: What do you mean by Cybernetics?

Q-2: Who provided the concept of operant learning?

a) Thorndike b) B.F. skinner

c) S. Pressy (1926) d) All of the above

Q-3. Computer is finest and most important gift of the science and technology to the mankind. True/False

Q-4 B.F. Skinner provided the concept of ……. conditioning.

2.5 Summary:

The Indian education system comprises multiple stages. Students progress through these levels of learning during their educational journey. The country has a unique position globally, catering to the increasing demand for high-quality education by offering a diverse range of curricula such as ICSE, IB, IGCSE, CBSE, and State Board. Additionally, the education system in the country accommodates students who prefer homeschooling and distance education. Despite the diversity of curricula, there is a joint educational framework that most schools in India follow. For those new to the Indian education system or seeking a comprehensive understanding of its stages, the following article provides valuable insights. It involves the formulation of learning objectives, developing appropriate strategies of teaching and designing evaluation techniques. Educations technology is an applied practical study. It argues that education systems should always ensure that learners' interests are placed at the center and that digital technologies are used to support an education based on human interaction rather than aiming at substituting it. The report looks at ways in which technology can help reach disadvantaged learners but also ensure more knowledge reaches more learners in more engaging and cheaper formats.

2.6 Glossary:

1. **Cybernetics:** Comparative study of the human control mechanism and electro-mechanical control system such as computer.

2. **Multimedia:** Using of sound, pictures and film in addition to text on a screen

3. **Behaviorism:** is a systematic approach to understand the behavior of humans and over animals**.**

2.7 Answers to self check exercise:

Self check exercise-1

Ans-1: Technology in education emphasizes the concept of service like technology in the service of farming or agriculture or science in the service of mankind.

Self check exercise-2

Ans-1:. Cybernetics has been defined as the comparative study of the human control mechanism and electro-mechanical control system such as computer. The word cybernetic means steersman, which emphasizes the principle of feedback control.

Ans-2: B.F. skinner

Ans-3: True

Ans-4: Operant

2.8 References and suggested readings:

De Cecco, John P. (1964)-Educational technology: Reading Programmed Instruction. Hall, New delhi.880pp

Bajpai, A.C. and Leedham, J.R. (1969)-Aspects of educational technology part 4 Pitman publishing Co. New York.

Merrill, M. David, Ed. (1971 ^Instructional Designs: Reading N.J. Prentice Hall 393pp.

J.S. walia- Educational Technology- Paul Publishers, Jalandhar City Punjab.

2.9 Terminal Questions:

1. What do you mean by educational technology? Discuss significance of educational technology in Indian context.

2. Discuss in detail the difference between technology of education and technology in education.

3. Discuss in detail phases of educational technology evolution.

Unit-3

Scope of Educational Technology

Hardware and Software Aspects of Educational Technology

Structure:

3.1 Introduction

3.2 Learning Objectives

3.3 Scope of educational technology

Self Check Exercise-1

3.4 Hardware and Software aspects of educational technology

Self Check Exercise-2

3.5 Summary

3.6 Glossary

3.7 Answers to self check exercises

3.8 References and suggested readings

3.9 Terminal Questions

3.1 Introduction:

This is the age of information technology. The use of science and technology can be seen everywhere in our daily lives. Science and technology has been instrumental in bringing efficiency, improvement and perfection in the process and product of human work. In case of teaching-learning it also makes it more comprehensive and simple and helps to display more information in a lesser time while making the process more interactive. Educational technology (ET) in the wider sense includes the development, application and evaluation of systems, techniques and aids in the field of learning and teaching. The shape of future schools, colleges, and universities is bound to change radically due to technological impact in the years to come. There are hardly any areas left, where you do not feel the necessity as impact of technology. Since this is the first unit of this course, we will make an attempt at understanding the concept and nature of educational technology. This unit will also help you to understand hardware, software, and systems approaches to educational technology. In spite of the psychological resistance and economic difficulty, one thing is clear that technology is creeping in to our economic and productive spheres of life. Radio has gone in to villages, television came to peoples approach and industries

are demanding large number of persons trained for specific and technical jobs. Some of the industries have started their own apprentice courses. For most of the teachers and teacher -educators, by and large, the term conveyed a meaning of technology in education. Thus the concept of educational technology has developed during last few years; it is a new area in discipline of education like: educational psychology, educational philosophy, educational measurement and evaluation.

3.2 Learning Objectives:

After studying this unit the students will be able to know about:

- Scope of educational technology.
- Hardware and Software aspects of educational technology:

3.3 Scope of Educational Technology:

Scope means the extent, range, jurisdiction, boundaries, province, limits, comprehensiveness, subject matter or topics to be included in any branch of knowledge. The scope of education technology is discussed as under:-

1. Analysis of teaching and learning. Educational technology covers different aspects of teaching and learning such as concept of teaching, variables of teaching, analysis of teaching process, levels of teaching, phases of teaching, and theories of teaching, concept of learning, relationship between teaching and learning and making teaching learning process more effective.

2. Identification of educational objectives. Under this head education technology identifies educational objectives in terms of behavioural specifications. It analyses broad educational objectives in terms of specifics classroom objective of teaching and learning.

3. Development of the curriculum. Development of the curriculum another important area of educational technology. Educational technology helps in designing a suitable curriculum for the achievement of educational objectives.

4. Development of teaching learning materials. This field of educational technology deals with the development of teaching-learning material in accordance with desired objectives, designing curriculum and available resources. It consists of techniques of developing software and instructional materials like programmed learning material, computer assisted learning material, mass-media material instruction, individualized system of instruction and other instruction strategies.

5. Teacher Preparation. Educational technology takes special, care of the preparation of teachers for performing their duties. For achieving this purpose educational technology covers the topics like models of teaching, team teaching, simulated teaching, micro-teaching, teacher effectiveness, modification of teachers behavior through classroom interaction and interactional analysis.

6. Teaching learning strategies. A strategy plays an important role in the hands of a teacher in every teaching learning situation. Educational technology evolves different teaching learning strategies. It studies the ways and means of selecting suitable strategies of teaching in terms of maximum teaming and available teaching resources – the availability of the different types of models of teaching, devices and methods of teaching.

7. Audio Visual Aids, Development; selection and use of the appropriate audio visual aids are another important area of educational technology. Audio visual aids play an important role in the teaching learning process.

8. Utilization of Hardware and Mass media. Education technology describes and utilizes various sophisticated instruments, equipments, gadgets and communications devices which play a significant role in achieving the educational objectives. Educational technology studies these resources in terms of specific function, their application in teaching learning situation, their proper selection, handling and maintenance, their preparation and development, the cost of effectiveness of these equipments and mass media in education and the ways and means of their optimum use.

9. Utilization of the sub-system of education. Education technology works for the effective utilization of the sub-system of education. It studies the topics dealing with theories and principles of a system approach, education as a system, its different sub-system, their operation and processes in terms of input and output, the organization and the management of the system in an effective way by specifying the respective role of man, machine and media in relation to teaching and learning.

10. Providing Feedback and Control through Evaluation. Education technology deals with the area of exercising proper control over the process of teaching and learning. It develops suitable tools and devices Tor continuous and improved evaluation of the process and products of the teaching learning activities.

11. Gaming and Simulation. If historical events which are either costly or hazards which cannot be conducted, then education technology can rascue as by doing the same through simulation. Computer technology in this regard plays a main role. The other possibility is games. Children can learn, through play, many concepts that just cannot be taught in the formal set of the classroom. The gaming and simulation has a great scope in the training of military personnel and in the field of aviation.

12. Distance Education. Education technology has a great scope in distance education and open school programme. Today there is a great need for personnel training and education on regular basis for updating oneself in the field of work. In this regard, distance education programmes, a relatively less formal process of education, have acquired new status.

Self Check Exercise-1

Q-1: Define the term educational objectives.

Q-2: What do you mean by audio visual aids?

Q-3: Discuss distance education.

Q-4: Who among the following has the regulatory body to grant recognitionto open distance education courses?

1. IGNOU

2. MHRD

3. UGC

4. DEB

3.4 Hardware and Software aspects of educational technology:

Educational technology for its useful application in the field of education may be categorized into two types i.e. hardware and software technology.

Hardware Technology: Educational technology in the form of hardware technology has its origin in the physical sciences and engineering and is based on the concept of service i.e. using technology in education. So hardware aids are based on the application of engineering principles for developing electromagnetic equipments for the instructional purposes. Hardware approach mechanizes the process of teaching so that teacher would be able to deal with more students with less expenditure in educating them. While teaching in a big hall a teacher uses microphone for making his voice for audible, he may be said to approach such form of educational technology for making his teaching effective, in this sense, audiovisual aids like charts, models, slides, film-strips, audio - cassettes, sophisticated equipments and gadgets like radio, television, film, projectors, tape- recorders, videos, teaching machines and computers etc. all may mean to use the technological advancement in the world of communication for educational purpose. Such type of mechanical and technical revolution has almost mechanized the teaching - leaning process. The mass-media movement born out of this approach is beneficial for the purpose of educating the people in low cost. However this form of technology tries to enter education from outside.

Software Technology: Software approach uses the principle of the psychology for modifying the behavior of the learner. This process uses the psychology of leaning for modifying the behaviour of the learner. The psychology of leaning provides solid technology for finding desirable behavioral changes in the pupils and thus serves the cause of education of laying down definite instructional procedure, teaching behaviour and behavior modification devices. It is in this-sense that this form of education

technology is sometimes referred to as instructional technology, teaching behaviour and behaviour technology.

Although this approach originated from the theories of learning, this form of technology tries to adopt a process - oriented technique for the production of suitable teaching learning material, teaching teaming strategies, evaluation techniques for optimum results in the teaching learning process. So we can say that in software we try to exploit psychology of teaming for the production and utilization of software techniques and material in terms of learning material, teaching teaming strategies, tools of evaluation and other devices to make teaching teaming easy process.

Self Check Exercise-2

Q-1: Educational technology in the form of hardware technology has its origin in the physical sciences and engineering. **True/False**

Q-2: The psychology of leaning provides solid technology for finding desirable behavioral changes in the pupils. **True/False**

3.5 Summary:

Hardware approach mechanizes the process of teaching so that teacher would be able to deal with more students with less expenditure in educating them. While teaching in a big hall a teacher uses microphone for making his voice for audible, he may be said to approach such form of educational technology for making his teaching effective, in this sense, audiovisual aids like charts, models, slides, film-strips, audio - cassettes, sophisticated equipments and gadgets like radio, television, film, projectors, tape-recorders, videos, teaching machines and computers etc. all may mean to use the technological advancement in the world of communication for educational purpose. Hardware and software technologies help the teacher as well as learners for making and judicious use of the multi media and multi- sensory aid materials, equipments and principles of teaching teaming derived from psychology and technology of teaching. The distance and correspondence education is the need for the hours and this need can only be better realized through the service of hardware and software technologies. Educational administrative problems can be solved scientifically with the help of System Analysis. Educational researchers have no impact on the present problem of education because their nature is more theoretical. This has opened or broken new field for experimentation for classroom teaching and learning problems. It helps in understanding the structure arid nature of teaching. Teaching models can be developed for achieving different objectives of education.

3.6 Glossary:

1. **Programmed Instruction**: Programmed Instruction is a method of individualized instruction, where each individual learns by himself at his own rate. Programmed learning consists of elements of new knowledge called Steps, which are arranged in a sequence in such way that a student can easily learn by himself.

2. **C.A.I. -** Computer Assisted Instruction

3. **Self-learning materials**: are educational tools meant to help learners obtain information and skills on their own, without the assistance of a teacher or instructor.

4. **Multimedia**: is a system of relaying information or entertainment that includes many different forms of communication.

5. **Mass media*:*** includes the diverse arrays *of media* that reach a large audience via *mass communication*.

3.7 Answers to self check exercise:

Self check exercise-1

Ans-1: Educational objectives, or learning outcomes, are statements that clearly describe what the learner will know or be able to do as a result of having attended an educational program or activity. Educational objectives must be observable and measurable.

Ans-2: Audio-visual aids are instructional devices which are used to communicate messages more effectively through sound and visuals. Audio-visual aids help in stimulating the sensory organs like ears and eyes and facilitate quick comprehension of the message by the audience.

Ans-3: Distance Education "is a process to create and provide access to learning when the source of information and the learners are separated by time and distance, or both." In other words, distance learning is the process of creating an educational experience of equal qualitative value for the learner to best suit their educational needs.

Ans-4: DEB

Self check exercise-2

Ans-1: True

Ans-2: True

3.8 References and suggested readings:

De Cecco, John P. (1964)-Educational technology: Reading Programmed Instruction. Hall, New delhi.880pp

Bajpai, A.C. and Leedham, J.R. (1969)-Aspects of educational technology part 4 Pitman publishing Co. New York.

Sharma, R.A. (2001) Technological foundations of education, Meerut: R Lall Book Depot P792.

Merrill, M. David, Ed. (1971 ^Instructional Designs: Reading N.J. Prentice Hall 393pp.

J.S. walia- Educational Technology- Paul Publishers, Jalandhar City Punjab.

3.9 Terminal Questions:

1. Explain the concept of educational technology. How will you differentiate educational technology from instructional technology?

3. What do you mean by educational technology? Discuss the scope and significance of educational technology in Indian context.

---///---

Unit-4

Role of Educational Technology in modern Educational Practices

Role of Hardware and Software Technology in the Modem Educational Practices

Structure:

4.1 Introduction

4.2 Learning Objectives

4.3 Role of educational technology in modern educational practices

Self Check Exercise-1:

4.4 The role of hardware and software technology in the modem educational practices

Self Check Exercise-2

4.5 Summary

4.6 Glossary

4.7 Answers to self check exercises

4.8 References and suggested readings

4.9 Terminal Questions

4.1 Introduction: Technology is not the solution, but just like books and classrooms and blackboards, technological tools can help teachers to improve their skills, to use their skills most effectively, and to be accountable. These investments should never be made on the basis of evidence-free optimism but rather evidence-based realism in terms of systems' capacity to maintain the technology, teacher willingness to engage the technology, and whether the technology will perform better than the cheaper, analog alternative. Teachers matter enormously to student learning. Teachers deliver academic knowledge. Teachers impart model socio emotional skills. Good teachers boost students' long-term life outcomes. Teachers can inspire (and in another demonstration of their importance, in some cases, sadly, teachers can disappoint or even abuse).Yet teachers, often lionized and occasionally villain zed, are people. They enter the profession for a wide range of reasons, they have their own families to feed, and – like most professionals – they respond to incentives, support, accountability, and the quality of the management around them. In short, they are part of a system.

4.2 Learning Objectives:

After studying this unit the students will be able to know about:

- Role of educational technology in modern educational practices
- The role of hardware and software technology in the modem educational practices

4.3 Role of educational technology in modem educational practices:

Educational technology has revolutionized the education system. It has greatly influenced the teaching-learning process. We have been discussing too much ‘theories of learning’ in the field of education, but these theories could not provide the substantial solutions for the teaching problems. Now, there is shift from theories of learning to theories of teaching as a result of educational technology. The great importance of educational technology is in the formulation and development of teaching theory. In addition, the following are the major advantages of educational technology:

1. It helps in improving teaching learning process and makes it more purposive.

2. The common man has got radio and transistor which can be used for education purpose.

3. The mass education has reduced the standard of education. The use of educational technology can maintain and improve the standard by the use of teaching aids and programmed instruction material.

4. The correspondence education can be made effective by the use of radio, television, tape recorders and programmed instruction.

5. The Indian universities have extended facilities, for appearing in the higher examinations as individual candidate. Thus students may be facilitated by organizing educational programs on radio and television.

6. Training institutions are not producing effective teachers. By using mechanism of feedback devices for the modification of teacher behavior, the effective teachers can be produced.

7. Educational administrative problems can be solved scientifically with the help of System Analysis.

8. Educational researchers have no impact on the present problem of education because their nature is more theoretical. This has opened or broken new field for experimentation for classroom teaching and learning problems.

9. It helps in understanding the structure arid nature of teaching. Teaching models can be developed for achieving different objectives of education.

10. The major problem of teaching learning has been to facilitate individual differences of learners. The educational technology has developed new innovative practices and strategies for this purpose.

11. Educational technology provides the scientific foundation to education, develops theories of teaching and instructions.

Self Check Exercise-1:

Q-1 It helps in improving teaching learning process. True/False

Q-2 The importance given in constructive educational technology is-

1. Agencies
2. Objectives
3. Medium
4. None of the above

:

4.4 The role of hardware and software technology in the modem educational practices:

Technology by their nature and characteristics stands for something executing process or a task that leads to achieve the best possible results by executing that task. The same is true for hardware and software technologies employed in the field of education. Here it stands for bringing improvement in the process and products of teaching beginning from all possible angles.

1. Helps in individualizing the instructions:

Individualization of the instructions is one of the major trend and demand of modern educational practices. The psychology of individual differences has brought the necessity of organizing instructional process according to the needs, instructions and abilities of individual learner. Use of hardware and software technology may help in this task in account of their very nature and possibilities of applications. Some of the equipments and material given to referring the importance of hardware and software in the educational process is given as below:

a. Programmed instructions 2. Programmed text-books 3.C.A.I. 4. Computer managed learning.

b. Video and audio recorded learning and instructional material, e. mail. Internet, teleconferencing etc.

c. Special aid materials, equipments and appliances used for special educational and adjustment measures for the disable children.

d. Special provision and facilities for the creative and gifted children to develop their capacities and potentials according to their interest.

2. Help in making use of multi-media and multi- sensory approach to teaching learning:

Hardware and software technologies help the teacher as well as learners for making and judicious use of the multi media and multi- sensory aid materials, equipments and principles of teaching teaming derived from psychology and technology of teaching. It has made possible to make use of.

i. All the sensory organs like sense of sight, hearing, touch, smell, and taste etc. for the acquisition of the desired teaching learning experiences.

ii. All the multimedia and appliances involving hardware and software technology or sharing desirable teaching learning experiences.

iii. All the relevant and needed teaching- learning methods devices and strategies etc. well accompanied by hardware software technologies.

3. Help in managing the affairs of educational practices in an efficient and productive way:

Use of software and hardware technology may help the teacher in the task of managing his affairs related to his educational and professional responsibilities in the sphere like below:

1. Planning of teaching-learning

2. Organization of teaching-learning

3. Heading teaching-learning

4. Controlling teaching-learning

4. Help in proper input and process for the best possible outcomes:

The use of hardware and software technology can help the educational and instruction systems to make all possible efforts for providing adequate input and needed process organizations to arrive at the best possible outcomes i.e. learning objectives in the more efficient and economic way.

5. Help in fulfilling the expectations of distance and correspondence education:

The demands of today's education and modern educational practices are putting increasing emphasis on the extension of distance education and correspondence

educational facilities to the day to day increasing number of learners sitting at the quite for distance from the source of knowledge and learning. The distance and correspondence education is the need for the hours and this need can only be better realized through the service of hardware and software technologies.

6. **Help in making task of teaching, learning interesting purposeful and productive :**use of hardware and software technology helps both the teacher and learners in the realization of their teaching - learning objectives by making the task of teaching- learning quite interesting .purposeful and productive through the provision as below:

   i. Suggesting suitable teaching-learning methods, devices and strategies based on the psychology of teaching-learning.

   ii. Suggesting suitable principles teaching- learning based on the theory and practices of technology of teaching- learning.

   iii. Providing a variety of instructional and self-learning materials suiting for the varying needs for teaching- learning situations.

Self Check Exercise-2

Q-1: Discuss the term individualization of instruction.

Q-2: Programmed text-books.

Q-3: Which of the following is not a Web 2.0 tool?

1. Blogs
2. Wikis
3. Email
4. Social media platform

4.5 Summary: The introduction of new technology-assisted learning tools such as mobile devices, smart boards, MOOCs, tablets, laptops, simulations, dynamic visualizations, and virtual laboratories have altered education in schools and institutions. The Internet of Things (IoT) is proven to be one of the most cost-effective methods of educating young brains. Technology is more than just playing video games and viewing animated films. The advantages are determined by how students, parents, and teachers use technology to improve education. When technology is used effectively for instructional reasons, the educational experience improves, and students become interested. The advancement of technology has had an influence on every part of our

lives, from banking to the way we connect with one another. Indeed, technology has become an essential component of sustaining civilization, and its incorporation into education is consequently unavoidable. Technology not only gives students access to a plethora of online materials, but it also helps them study.

4.6 Glossary:

1. **Plethora:** The meaning of PLETHORA
   is an ample amount or number: abundance, profusion. How to use plethora in a sentence.

2. **Correspondence education:** A historic method of providing education for nonresident students, primarily adults who received lessons and exercises through the mails or some other device and, upon completion, returned them for analysis, criticism, and grading.

3. **Instructional design**: is a
   systematic process of designing and developing effective instructional materials and learning experiences.

4. ***Mass* media*:*** includes the diverse arrays *of media* that reach a large audience via *mass communication*.

4.7 Answers to self check exercise:

Self check exercise-1

Ans-1: Yes

Ans-2: Objectives

Self check exercise-2

Ans-1: Individualized instruction refers to educators using specific strategies, resources and assessments that cater to the needs of learners in their class. This process ensures that students are given guidance and flexibility in their learning process, enhancing their academic growth along the way.

Ans-2: A textbook, which in addition to instructional material provides schemas of learning including reading/listening and control of knowledge assimilation. The principles of programmed textbooks are: clear learning objectives, small steps, logical sequence, active responding, immediate feedback; drill and practice and stimulus fading.

Ans-3: E mail

4.8 References and suggested readings:

De Cecco, John P. (1964)-Educational technology: Reading Programmed Instruction. Hall, New delhi.880pp

Bajpai, A.C. and Leedham, J.R. (1969)-Aspects of educational technology part 4 Pitman publishing Co. New York.

Sharma, R.A. (2001) Technological foundations of education, Meerut: R Lall Book Depot P792.

Merrill, M. David, Ed. (1971 ^Instructional Designs: Reading N.J. Prentice Hall 393pp.

J.S. walia- Educational Technology- Paul Publishers, Jalandhar City Punjab.

4.9 Terminal Questions:

1. Explain the concept of educational technology. How will you differentiate educational technology from instructional technology?

2. Discuss in detail the role of educational technology in modern educational practices.

---///---

Unit-5

E-mail, Teleconferencing & Interactive video, Wiki, Blog, Social Networking and Levels of teaching

Structure

5.1 Introduction

5.2 Learning Objectives

5.3 E-Mail

Self Check Exercise-1

5.4 Teleconferencing

Self Check Exercise-2

5.5 Types of Teleconferences

Self Check Exercise-3

5.6 Why Use a Teleconference

Self Check Exercise-4

5.7 10 Features of Choosing a Teleconferencing Service

Self Check Exercise-5

5.8 Summary

5.9 Glossary

5.10 Answers to self check exercise

5.11 References and suggested readings

1.12 Terminal questions

5.1 Introduction:

The computer is known as electronic brain and is a speedy electronic device which is designed to accept and store data information instructions to process the same automatically to produce result according to the given programme. The e-mail is mode of communication of information or message. The network of channel connected two

computers for sending message immediately. The message can be sent by a computer it can be sent on other distant computer where it is wanted. E-mail services are used in automobiles, engineering and share marketing. Educational teleconferencing can be a valuable medium for interactive group communication by means of a two-way broadcast. Today, the dependence on the technology is accelerating. The interest in using audio and related visual data that can be transmitted over regular telephone lines appear to berelated to the growth of education. Social networking is the practice of expanding the number of one's business and/or social contacts by making connections through individuals. A defining characteristic of wiki technology is the ease with which pages can be created and updated. Generally, there is no review before modifications are accepted. As more interactive technologies emerge, the value of being an independent learner will increase. Research shows that learning from new technologies is as effective as traditional methods. Large groups are cost-effective and everyone gets the same information. Long distance telephone calls, national and international televised sporting events, and cable movie channels operate via satellites. Satellites have been used for years. Many blogsprovide, commentary on a particular subject; others function as more personal online diaries; others function more as online brand advertising of a particular individual or company.

5.2 Learning Objectives: After reading this lesson the students will be able to know about:

The concept of e-mail

The meaning and characteristics of teleconferencing

5.3 E-Mail:

Electronic mail is a method of exchanging digital messages between computer users; such messaging first entered substantial use in the 1960s and by the 1970s had taken the form now recognized as email. Email operates across computer networks, _now primarily the Internet.

Some early email systems required the author and the recipient to both is online at the same time, in common with instant messaging. Today's email systems are based on a store-and-forward model. Email servers accept, forward, deliver, and store messages. Neither the users nor their computers are required to be online simultaneously; they need connect only briefly, typically to a mail server, for as long as it takes to send or receive messages.

E-mail (electronic mail) is the exchange of computer-stored messages by telecommunication. (Some publications spell it email; we prefer the currently more established spelling of e-mail.) E-mail messages are usually encoded in ASCII text. However, you can also send non-text files, such as graphic images and sound files, as attachments sent in binary streams. E-mail was one of the first uses of the Internet and is still the most popular use. A large percentage of the total traffic over the Internet is e-

mail. E-mail can also be exchanged between online service provider users and in networks other than the Internet, both public and private.

Originally an ASCII text-only communications medium, Internet email was extended by Multipurpose Internet Mail Extensions (MIME) to carry text in other character sets an multi-media content attachments. International email, with internationalized emai addresses using UTF-8, has been standardized, but as of 2016 not widely adopted.

The history of modern, global Internet email services reaches back to the early ARPANET, with standards for encoding email messages proposed as early as 1973 (RFC 561). An email message sent in the early 1970s looks very similar to a basic text email sent today Email played an important part in creating the Internet, and the conversion from ARPANET to the Internet in the early1980s produced the core of the current services. The ARPANET initially used extensions to the File Transfer Protocol (FTP) to exchange network email, but this is now done with the Simple Mail Transfer Protocol (SMTP), first published as Internet standard 10 (RFC 821) in 1982.

There are times when phone and face-to-face conversations are more efficient and productive, but in most cases, email is a near-perfect medium for communication-as long as it’s used correctly. Here are the seven qualities of a successful email:

Email is an underestimated communication platform; I’ve even argued that it’s more efficient than phone calls (in most situations, except for sales). It’s certainly well-adopted by businesses as a communication medium though, with the vast majority of Americans using it as their primary business communication channel.

But email’s effectiveness is limited by the effort put into each one by its sender. Instead harnessing the value of the medium's unique advantages, too many people tend to haphazardly throw their thoughts into the body of an email and hit send. If the-information isn't input clearly, it’s obviously going to be much more susceptible to being incorrectly interpreted; causing a potentially lengthy back-and-forth chain that drives productivity to a halt.

For some people who have experienced this, ifs why they insist phone calls and face-to-face conversations are more advantageous for business communication. There are times when phone and face-to-face conversations are more efficient and productive, but in most cases, email is a near-perfect medium for communication-as long as it’s used correctly. Here are the seven qualities of a successful email.

1. Concise. Emails are not the place to ramble. Since emails can transmit virtually unlimited amounts of information, it’s easy to go on tangents or try to include every bit of information you can in one single email. This is usually not the best approach. Instead, it’s better to focus on making your emails as concise as possible; in other words, it’s better to put as much information into as few words as possible.

You can do this by cutting out the fluff. Unlike phone calls, you don’t have to spend time making small talk or introducing the problem. Instead, you can immediately begin by

presenting the most relevant information. After you draft your email, go through and eliminate any sentences (or individual words) that are unnecessary.

2. Intention-focused. Speaking of goals, your email should have one. If your email doesn't have a central intention, such as "to summarize the meeting and recap next steps," you shouldn't be sending one. Everything in your email needs to feed that central intention, and that central intention should be clear to everyone reading it.

In order to make your central intention evident, you need an effective, direct subject line. Writing one can be difficult, especially for long emails that need to cover a lot of ground, but without an immediate and clear subject line, your email could be overlooked or hard to find after a certain amount of time parses. Include information such as the client, the topic, of the due date (for a specific action item). Never use a subject line to write body copy.

3. Summarizing. Your email should have some sort of summary to start filings off, unless it's a response to an email thread already in progress. In this summary, you should capture all the times covered to date (whether those items were all covered in a recent meeting or over the course of the last several weeks). This will get everybody reading the email up to speed on background information before you delve into the matter at hand.

Remember, there's a difference between summarizing and reiterating. You aren't necessarily aiming to repeat all the information that has been covered to date. Instead, you are trying to convey the most important elements of that information in as little space as possible.

4. Well-organized. Your email needs to be organized logically. There is no single format that applies to every email, but every email needs to be well thought-out. Start your email by addressing your audience and move into a subject. Your subject can be split in any number of ways. For example, you could separate your sections chronologically by starting with a recap of previous meetings, moving into a general summary, and ending with a list of action items. Or, you could opt to segment your email in terms of individual participants, calling out each individual's responsibilities in one group email.

No matter how you choose to organize your email, your organization should be instantly recognizable to anyone reading your email for the first time. Keep all relevant subject matter confined to its section in your email, with no spill over.

5. Visually scan able- This is especially important, with attention spans at all-time lows and inbox counts reaching all-time highs. Even if your intended audience needs to read your email in full the first time around, your email should-be visually "scan able" for repeat reads. Don’t make your paragraphs too long (creating the dreaded wall-of-text), and try to make certain sections of content pop out with different formatting. For example, bullet points are an extremely effective way to organize and present a dedicated list because they can be read quickly and easily. They stand out from the rest of the email and can be tackled one at a time.

You can also use formatting tricks like bolding to call out specific names or important dates, and if you want to get fancy, you can color-code your email to correspond with different relevant parties. The goal is to design your email to be referenced easily at a glance.

6. Polite and tone-appropriate. Emails do have one potential drawback. Because they are written, and not expressed with the wide range of vocal tones and body language gestures we're used to in interpersonal communication, they are prone to tonal misinterpretation. That means you have to be extra careful to make sure your words are taken correctly and appropriately by the receiving party.

First, make sure you're writing in a tone that's appropriate for your audience. If you are emailing a new client with conservative values, it's best to address them formally as Mr. /Mrs. /Ms. rather than with a "Hey Bob!" On the other hand, if you're emailing a coworker about a project you're collaborating on, don't come off too stiff by using short, unfriendly sentences.

Second, be cordial,, but straightforward. Emails aren't the best place to make sarcastic or tongue-in-cheek jokes, even if the tone would allow it. Assume your reader is going to take everything literally.

7. Clear on action. The best emails have a clear action plan. If there isn't any action required by any of your readers, you probably didn't need to send an email in the first place. Especially in longer emails, ifs easy for action items to get lost. Some email writers might casually mention them, buried in a sentence in the middle of the body, while others wouldn't call them out at all, assuming the action items are implied.

Instead, make all action items clear. Make a list of each action item, as well as the party responsible for carrying that action item out and an expected date of completion (where relevant). Your readers will instantly know what is expected of them, and better yet, you'll have a historical point you can reference in the future to hold those parties accountable.

If you can start writing emails with all seven of these important qualities, you'll improve the coherence and practicality of your emails. As a result, your coworkers and clients will be happier, your productivity will skyrocket, and you'll never again have to worry about that never-ending back-and-forth of questions and responses.

Self Check Exercise-1

Q-1: Write a short note on E-Mail**.**

Q-2: What do you mean by the term visually scan?

5.4 Teleconferencing:

Teleconferencing means meeting through a telecommunications medium. It is a generic term for linking people between two or more locations by electronics. There are at least six types of teleconferencing: audio, audio graphic, computer, video, business television (BTV), and distance education. The methods used differ in the technology, but common factors contribute to the shared definition of teleconferencing:

Use a telecommunications channel

Link people at multiple locations

Interactive to provide two-way communications

Dynamic to require users' active participation

Self Check Exercise-2

Q-1: What is the meaning of teleconferencing?

5.5 Types of Teleconferences:

Audio Teleconference: Voice-only; sometimes called conference calling. Interactively links people in remote locations via telephone lines. Audio bridges tie all lines together. Meetings can be conducted via audio conference. Preplanning is necessary which includes naming a chair, setting an agenda, and providing printed materials to participants ahead of time so that they can be reviewed.

Distance learning can be conducted by audio conference. In fact, it is one of the most underutilized, yet cost effective methods available to education. Instructors should receive training on how to best utilize audio conferences to augment other forms of distance learning.

Audio graphics Teleconference: Uses narrowband telecommunications channels to transmit visual information such as graphics, alpha-numeric's, documents, and video pictures as an adjunct to voice communication. Other terms are desk-top computer conferencing and enhanced audio. Devices include electronic tablets/boards; freeze-frame video terminals, integrated graphics systems (as part of personal computers), Fax, remote- access microfiche and slide projectors, optical graphic scanners, and voice/data terminals.

Audio graphics can be used for meetings and distance learning.

Computer Teleconference: Uses telephone lines to connect two or more computers and modems. Anything that can be done on a computer can be sent over the lines. It can be synchronous or asynchronous. An example of an asynchronous mode is electronic mail.

Using electronic mail (E-Mail), memos, reports, updates, and newsletters can be sent to anyone on the local area network (LAN) or wide area network (WAN); Items generated on computer which are normally printed and then sent by facsimile can be sent by E-Mail.

Computer conferencing is an emerging area for distance education. Some institutions offercredit programs completely by computer. Students receive texts and workbooks via mail. Through common files assigned to a class which each student can assess, teachers upload syllabi, lectures, grades and remarks. Students download these files, compose their assignment and remarks off-line, and then upload them to the common files.

Students and instructors are usually required to log on for a prescribed number of days during the week. Interaction is a large component of the students' grades.

Through computers, faculty, students and administrators have easy access to one another as well as access to database resources provided through libraries. The academic resources of libraries and special resources can be accessed such as OCLC, ERIC, and Internet.

Administrators can access student files, retrieve institutional information from central repositories such as district or system offices, government agencies, or communicate with one another. Other resources can be created such as updates on state or federal legislation.

Video Teleconference: Combines audio and video to provide voice communications and video images. Can be one-way video/two-way audio or two-way video/two-way audio, it can display anything that can be captured by a TV camera. The advantage is the capability to display moving images. In two-way audio/video systems, a common application is to show people which create a social presence that resembles face-to-face meetings and classes and enables participants to see the facial expressions and physical demeanor of participants at remote sites. Graphics are used to enhance understanding. There are three basic systems: freeze frame, compressed, and full-motion video.

Video conferencing is an effective way to use one teacher who teaches to a number of sites. It is very cost effective for classes which may have a small number of students enrolled at each site. In many cases, video conferencing enables the institution or a group of institutions to provide courses which would be canceled due to low enrollment or which could not be supported otherwise because of the cost of providing an instructor in an unusual subject area. Rural areas benefit particularly from classes provided through video referencing when they work with a larger metropolitan institution that has full-time faculty.

Through teleconferencing, institutions are able to serve all students equitably.

Self Check Exercise-3

Q-1: Name the types of teleconferencing.

5.6 Why Use a Teleconference?

Video-conferencing increases efficiency and results in a more profitable use of limited resources. It is a very personal medium - for human issues where face-to-face communications are necessary. When you can see and hear the person you are talking to oh a television monitor, they respond as though you were in the same room together. It is an effective alternative to travel which can easily add up to weeks of non-productive time each year. With videoconferencing, you never have to leave the office. Documents are available, and experts can be on hand. A crisis that might take on major proportions if you are out of town can be handled because you're on the job. Videoconferencing maximizes efficiency because it provides a way to meet with several groups in different locations, at the same time.

As the limited resource of funding has decreased, limited resources now include instructors, parking spaces and buildings. Students now include time as limited resources, Teleconferencing enables institutions to share facilities and instructors which will increase our ability to serve students.

Move Information - Not People

Electronic delivery is more efficient than physically moving people to a site, whether it is a faculty member or administrator.

Save Time: Content presented by one or many sources is received in many places simultaneously and instantly. Travel is reduced resulting in more productive time. Communication is improved and meetings are more efficient. It adds a competitive edge that face-to-face meetings do not.

Lower Costs: Costs (travel, meals, lodging) are reduced by keeping employees in the office, speeding up product development cycles, improving performance through frequent meetings with timely information.

Accessible: Through any origination site in the world. Larger Audiences: More people can attend. The larger the audience, the lower the cost per person.

Larger Audiences: More people can attend. The larger the audience, the lower cost per person.

Adaptable: Useful for business, associations, hospitals, and institutions to discuss, inform, train, educate or present.

Flexible: With a remote receive or transmit truck, a transmit or receive site can be located anywhere.

Security: Signals can be encrypted (scrambled) when it is necessary. Encryption prevents outside viewers.

Unity: Provides a shared sense of identity. People feel more a part of the group...more often. Individuals or groups at multiple locations can be linked frequently.

Timely: For time-critical information, sites can be linked quickly. An audio or point-to-point teleconference can be convened in three minutes.

Interactive: Dynamic; requires the user's active participation, it enhances personal communication. When used well for learning, the interactivity will enhance the learning and the teaching experience.

Self Check Exercise-4

Q-1: Write advantages of teleconferencing**.**

5.7 10 Features of Choosing a Teleconferencing Service:

Recently we've had troubles with our existing teleconferencing service, with people having troubles getting a long-distance line to dial into telecasts. Two years ago we did a huge research project, looking at all the paid and free teleconference services in order to choose the best one for our small, 40-person telecasts and our large 400-person teleclasses., Once again, I'm back to research mode. If you use teleconference services, or are planning to in the future, it is important to be aware of the recent problems most of my colleagues have been experiencing so you can choose your own teleconference service wisely.

Choosing a teleconference system to use for your teleclasses and teleseminars is an important decision. Each service offers a different array of features. While there can be several dozen features to consider when making your choice, here are the Top 10 features I think are important:

1. **Online control panel.** The online control panel lets you see how many people are on the call, whether they are muted or not, and when new people come on the call. Some control panels allow you to manage the call online, and some include a Contact list so that the name of the participant shows up next to their telephone number.

2. **Guest Speaker access.** Does the system allow you, plus a guest speaker, to be on the line while everyone else is muted? This is especially important if you are going to invite experts to.be interviewed in your teleseminar.

3. **24/7 reservations.** Do you have to call in every reservation, or can you simply go online to schedule your calls? Is one line reserved for you that you can use anytime you want? I prefer a teleconference system where my assistant can reserve the phone line and schedule the dates/times online as they give us instant access to the telephone number and' passcode that will be used, which we can then send immediately to our participants.

4. **Ability to record the call through the teleconference company.** The ability to offer recordings of your teleclasses is of major importance. I've typically seen 30% or more of the participants who never attend live; they just listen to the recordings. Being able to record the teleclass means more people have access to your message. (Note: I often use both the teleconference line's recording ability plus my own physical digital recorder as a backup.)

5. **Ability to keep a history of recordings.** Some teleconference systems will allow you to keep multiple recordings from different teleclasses on their system, while others overwrite all existing recordings when you begin to record a new class. If you are teaching a teleclass that is a series (say, once a week for five weeks), you want to be able to keep and download those recordings for the entire series to share with your participants.

6. **Ability to have at least 50 people on a call (and all 50 can talk at the same time).** You might think you will only have 10 people on a call, but as your business grows, you may find that you sometimes will have 50,100 or 200 on a call! For our free teleclasses, we often get 400-500 people register. Choose a system that can grow with you. Also, make sure that everyone who is on the call has the ability to speak and interact. Some systems say that they can have 96 people on a call, but when you read the fine print, you see that only 25 people can talk at a time.

7. **Ability to mute some or all participants.** Participants bring background noises: dogs barking, kitchen dishes rattling, cars zooming by, colleagues speaking loudly in the same room. While the participants might not hear the noise themselves, everyone else on the call can hear it! Being able to mute individuals, or mute everyone on the call, makes it a better experience for everyone. It also helps if participants can mute and un-mute themselves individually.

8. **Calls can be scheduled for whatever timeframe you want.** (Like 12:55 - 2:15). Some systems only schedule in 1-hour increments. Some systems will cut off the call at the assigned ending time, whether you are finished speaking or not. Get a system that allows you flexibility in call start/stop times and durations.

9. **NO "circuits busy" problem, guaranteed.** There has been an explosion of people wanting to use teleconferencing lines over the past few years, and the "circuits busy" message that you sometimes get when dialing into a call is because there are not enough long-distance lines able to handle the influx of people all dialing into one number. The problem is with the capacity of the long distance telephone company (BellSouth, Verizon, etc.), not with the teleconferencing

company itself. Apparently this problem is happening with many free teleconference companies, especially if you have more than 20 people dialing in, or it's a particularly busy time of the day. (Evenings 7:00 - 9:00 PM are especially busy.) Most free teleconferencing companies probably don't have the power to ask the telephone company to make more long distance circuits available, so a paid teleconferencing company might be your best solution.

10. **Free versus Paid.** My next research project is going to be into "paid" teleconferencing lines. Some of these services offer special features not found in the free services, like streaming of your teleclass via the web, or the ability for participants to type in a question or comment on a website. Paying for a teleconference service is not the optimum solution for someone who is budget-conscious, but may be the only solution for people who are seriously offering paid teleclasses, or using teleseminars as part of their marketing campaigns. As soon as I complete that research, I'll let you know what I discover so that you can make your own decision about which service is right for you.

Self Check exercise-5

Q-1: Write three features of choosing a teleconferencing service.

5.8 Summary:

Possibilities of success are always imagined through one's learning journey often defined through mainstream education. Through this lens, mainstream education, loosely defined as classroom learning, is the only place where real knowledge can be created which is only challengeable by people who have been through this formal machinery of education. For example, imagine the shock of a first year university student who has to grapple with the discovery those twelve years of formal schooling has not earned them the right to formulate and express an opinion at that level. As the limited resource of funding has decreased, limited resources now include instructors, parking spaces and buildings. Students now include time as limited resources. Teleconferencing enables institutions to share facilities and instructors which will increase our ability to serve students. Most e-mail systems include a rudimentary text editor for composing messages, but many allow you to edit your messages using any editor you want. Some systems will also provide basic formatting, including bold, italics, font color and HTML. You can use the program to send the message to a recipient by specifying the recipient's address. You can also send the same message to several users at once. This is called broadcasting. In memory level emphasis is laid down on the presentation of the facts and information's and its cramming. Memory level of teaching is a prerequisite for the understanding level of teaching. In understanding level of teaching teacher stresses to make understand to the pupils the generalizations, principles and facts. Reflective level of teaching includes both understanding level and memory level of teaching. Reflective level of teaching means 'problem centered' teaching. In this the classroom environment is open sufficiently. The teacher creates such a problem before the pupil, which arouses so much tension in the

pupils that they start solving their problems by formulating and testing their hypothesis as a result of their motivation and activeness.

5.9 Glossary:

Communication: the methods that are used for travelling to and from a place or for sending messages between places.

Teleseminars*:* are used to provide information, training, or promote or sell products to group of people interested in a particular topic.

Video conference solution: is a medium for visual communications between two or more people who can connect over the internet. As it involves communication in real time, cloud integration plays a huge role.

E-Delivery: is the ability to send invoices or other important communications via email. When companies say they are “going paperless” this is what they mean! Now most organizations—and customers—still want both paper and email delivery options.

5.10 Answers to Self Check Exercise:

Self Check Exercise-1

Ans-1: Email is an underestimated communication platform; I’ve even argued that it’s more efficient than phone calls (in most situations, except for sales). It’s certainly well-adopted by businesses as a communication medium though, with the vast majority of Americans using it as their primary business communication channel.

Ans-2: Visual scanning refers to the ocular strategies employed for exploring various classes of visual stimuli including faces, objects, and scenery. Scanning patterns reflect the viewer's strategy for acquiring visual information. Therefore, visual scanning precedes visual information processing.

Self Check Exercise-2

Ans-1: Teleconferencing means meeting through a telecommunications medium. It is a generic term for linking people between two or more locations by electronics. There are at least six types of teleconferencing: audio, audio graphic, computer, video, business television (BTV), and distance education.

Self Check Exercise-3

Ans-1: Audio Teleconference

Audio graphics Teleconference

Computer Teleconference

Self Check Exercise-4

Ans-1:

Save Time

Lower Costs: Accessible

Larger Audiences

Adaptable

Flexible

Self Check Exercise-5

Ans-1: Ability to record the call through the teleconference company.

Ability to keep a history of recordings.

Ability to have at least 50 people on a call (and all 50 can talk at the same.

5.11 References and suggested readings:

^[abc]"wiki". Encyclopedia Britannica 1, London: EncyclopediaBritanriica. Inc.. 2007, retrieved April 10, 2008

^ [ab]Mitchell, Scott (July 2008), Easy Wiki Hosting. Scott Hansel man's blog, and Snagging Screens.. MSDN Magazine, retrieved March 9, 2010

^ A Cunningham. Ward (June 27, 2002), what is a Wiki. WikiWikiWeb, retrieved April 10, 2008

^ mauimapp.com.Hawaiian Words: Hawaiian to English [Retrieved September19, 2008]

Kala Prakashan Publishers

_ KarpagaKumaravel R. (1998), Educational Applications of Video-

Theory, Research and Practice, Coimbatore: Suri Publishers

_ KarpagaKumaravel R. (1999), Reading in Educational

Technology, Coimbatore: Suri Publishers

_ Kumar, K.L (2000), Educational Technology, New Delhi: New Age International (p) Ltd.

_ Leon (2002) Internet for Everyone. New Delhi: Vikas Publishing House.

_Roblyer, H.D, Edward, Jack and Havriluk (1997) Integrating Educational technology into teaching. New York: Merrill, as Imprint of prentice Hall.

5.12 Terminal Questions:

1. What do you mean by e-mail? What are the characteristics of e-mail?

2. Indicate the technical aspects of teleconferencing and its aspects in education.

3. Discuss five features of choosing a teleconferencing service.

Unit-6

Interactive video, Wiki, Blog, Social Networking

Structure:

6.1 Introduction

6.2 Learning Objectives

6.3 Interactive video

Self Check Exercise-1

6.4 Advantages of Interactive video

Self Check Exercise-2

6.5. Disadvantages of interactive video

Self Check Exercise-3

6.6 Wiki

Self Check Exercise-4

Self Check Exercise-5

6.7 Blog

Self Check Exercise-6

Self Check Exercise-7

6.8 Social Networking

Self Check Exercise-8

6.9 Summary

6.10 Glossary

6.11 Answers to self check exercise

6.12 References and suggested readings

6.13 Terminal questions

6.1 Introduction:

Interactive video, at its most basic, is video that you can interact with. Video is already well established as the most engaging media, whether it's used for learning, marketing or sales. Viewers retain 95% of a message when they watch it in a video compared to 10% when reading it in text. Can videos be interactive? In short, an interactive video lets a viewer manipulate the direction or method of engaging with the video the way they want to. There are a few techniques you can use to help them do that. An interactive video gives the viewer the ability to interact with the video content itself through a variety of tools. Users can click, drag, scroll, hover, gesture and complete other digital actions to interact with the video's content, similar to the way they'd interact with web content. Video branching. Allow viewers to choose their own path through your content with video branching, also known as "Choose Your Own Adventure" experiences. Interactive video does more than allow viewers to interact with a video. Interactivity enables you to easily create two-way communication with your audience, making the video experience more engaging for your viewers and more insightful for you. The interest in using audio and related visual data that can be transmitted over regular telephone lines appear to be related to the growth of education. Social networking is the practice of expanding the number of one's business and/or social contacts by making connections through individuals. A defining characteristic of wiki technology is the ease with which pages can be created and updated. Generally, there is no review before modifications are accepted. Social networks are websites and apps that allow users and organizations to connect, communicate, share information and form relationships. People can connect with others in the same area, families, friends, and those with the same interests. Social networks are one of the most important uses of the internet today. Social networking connects individuals and businesses by allowing them to share information, ideas, and messages. Companies also use social networks to create and strengthen brand recognition, promote products and services, and answer customer queries and concerns. Social network theory is an umbrella term for theories that focus on individuals, teams and organizations, and the web of interpersonal relationships that both constrain and enable human action in these social systems. As more interactive technologies emerge, the value of being an independent learner will increase. Research shows that learning from new technologies is as effective as traditional methods. Large groups are cost-effective and everyone gets the same information. Long distance telephone calls, national and international televised sporting events, and cable movie channels operate via satellites. Satellites have been used for years.

6.2 Learning Objectives: After reading this lesson the students will be able to know about:

The concept of Interactive video

Meaning of wiki

Meaning and concept of blogging and social networking

6.3 Interactive video:

Interactive video, an innovation in educational technology, is getting popularity day by day because of its dual functions of providing video pictures and computer assisted instruction. Thus, interactive video makes use of the existing technologies of video and computer -assisted instruction and thereby provides all the advantages of the two media as well as in an effective interaction between them.

In an interactive video system, the video medium can be either video disc or video cassette and interaction with the system is provided by an interface to a microcomputer. A lesson generally runs under the control of the computer program. The computer controls all the normal functions of the video machine like play .fast forward, rewind, still frame, search etc. Usually, the same monitor is used by the computer and the video. As a result, a student can at a point of time see a video picture or computer display although an overlay of computer output over the video picture can be done, as we have already seen in case of computer -assisted instruction, interactive video also uses the principles of programmed instruction in structuring teaching -learning series. The time of video presentation is 5 to 10 minutes. Student types in answer, computer checks it, if correct, computer output correct message, then plays next video, if incorrect computer outputs incorrect message, then either plays a remedial video or branches to a remedial computer series then finishes with another test problem.

Self Check Exercise-1

Q-1: Discuss the term interactive video.

6.4 Advantages of Interactive video:

The advantage of interactive video is that the amount of information immediately available is enormous because of the immense storage capacity of a video disc. A single video disc can even store the ehtire Encyclopedia Britannica.

It has the potential to present text, graphics, film and sound in varied way.

Self Check Exercise-2

Q-1: Write one advantage of interactive video.

6.5 Disadvantages of Interactive video:

Because of its high controlled nature, learners have hardly any choice over the order of presentation of the material, or the tests. Thus, they cannot follow up their interests and problems as they arise. In results, learning may become mechanical rather than meaningful. In spite of some difficulties, interactive video may turn out to be the educational.

Self Check Exercise-3

Q-1: Write one disadvantage of interactive video.

6.6 Wiki:

A wiki is a website which allows collaborative modification of its content and structure directly from the web browser. In a typical wiki, text is written using a simplified markup language(known as "wiki markup"), and often edited with the help of a rich-text editor?

A wiki is run using wiki software, otherwise known as a wiki engine. There are dozens of different wiki engines in use, both standalone and part of other software, such as bug tracking systems. Some wiki engines are open source, whereas others are proprietary. Some permit control over different functions (levels of access); for example, editing rights may permit changing, adding or removing material. Others may permit access without enforcing access control. Other rules may also be imposed to organize content. A wiki engine is a type of content management system, but it differs from most other such systems, including blog software, in that the content is created without any defined owner or leader, and wikis have little implicit structure, allowing structure to emerge according to of the users.[2]

The encyclopedia project Wikipedia is by far the most popular wiki-based website, and is in fact one of the most widely viewed sites of any kind of the world, having been ranked in the top ten since 2007. Wikipedia is not a single wiki but rather a collection of hundreds of wikis, one for each language. There are at least tens of thousands of other wikis in use, both public and private, including wikis functioning as knowledge management resources, note taking tools, community websites and intranets.

Ward Cunningham, the developer of the first wiki software, WikiWikiWeb. Originally described it as "the simplest online database that could possibly work".

Self Check Exercise-4

Q-1: What do you mean by the term wiki?

Characteristics:

Ward Cunningham and co-author Bo Leuf, in their book The Wiki Way: Quick Collaboration on the Web, described the essence of the Wiki concept as follows:

- A wiki invites all users to edit any page or to create new pages within the wiki Web site, using only a plain-vanilla Web browser without any extra add-ons.
- Wiki promotes meaningful topic associations between different pages by making page link creation almost intuitively easy and showing whether an intended target page exists or not.
- A wiki is not a carefully crafted site for casual visitors. Instead, it seeks to involve the visitor in an ongoing process of creation and collaboration that constantly changes the Web site landscape.

A wiki enables communities to write documents collaboratively, using a simple markup language and a web browser. A single page in a wiki website is referred to as a "wiki page". While the entire collection of pages, which are usually well-interconnected by hyperlinks, is "the wiki". A wiki is essentially a database for creating, browsing, and searching through information. A wiki allows non-linear, evolving, complex and networks text, argument and interaction.[8]

A defining characteristic of wiki technology is the ease with which pages can be created and updated. Generally, there is no review before modifications are accepted. Many wikis are open to alteration by the general public without requiring registration of user accounts. Many edits can be made in real-time and appear almost instantly online. However, this feature facilitates abuse of the system. Private wiki servers require user authentication to edit pages, and sometimes even to read them.

Self Check Exercise-5

Q-1: Write one characteristic of wiki.

6.7 Blog:

A blog (a truncation of the *expression weblog*) is a discussion or informational site published on the World Wide Web consisting of discrete .entries ("posts") typically displayed in reverse chronological order (the most recent post appears first). Until 2009, blogs were usually the work of a single individual, occasionally of a small group, and often covered a single subject. More recently, "multi-author blogs" (MABs) have developed, with posts written by large numbers of authors and professionally edited. MABs from newspapers, other media outlets, universities, think tanks, advocacy groups, and similar institutions account for an increasing quantity of blog traffic. The rise of Twitter and other

"micro blogging" systems helps integrate MABs and single-author blogs into societal new streams. Blog can also be used as a verb, meaning to maintain or add content to a blog.

The emergence and growth of blogs in the late 1990s coincided with the advent of web publishing tools that facilitated the posting of content by non-technical users. (Previously,a knowledge of such technologies as HTML and FTP had been required to publish content on the Web.)

A majority are interactive, allowing visitors to leave comments and even message each other via GUI widgets on the blogs, and it is this interactivity that distinguishes them from other static websites.[2]In that sense, blogging can be seen as a form of social networking service. Indeed, bloggers do not only produce content to post on their blogs, but also build social relations with their readers and other bloggers. However, there are high- readership blogs which do not allow comments.

Many blogs provide commentary on a particular subject; others function as more personal online diaries; others function more as online brand advertising of a particular individual or company. A typical blog combines text, images, and links to other blogs, Web pages, and other media related to its topic. The ability of readers to leave comments in an interactive format is an important contribution to the popularity of many blogs. Most blogs are primarily textual, although some focus on art (art blogs), photographs (photo blogs), videos (video blogs or "vlogs"), music (MP3 blogs), and audio (podcasts). Micro blogging is another type of blogging, featuring very short posts. In education, blogs can be used as instructional resources. These blogs are referred to as edibles.

Self Check Exercise-6

Q-1: What is blog?

Types

There are many different types of blogs, differing not only in the type of content, but also in the way that content is delivered or written.

Personal blogs

The personal blog is an ongoing diary or commentary written by an individual.

Collaborative blogs or group blogs

A type of weblog in which posts are written and published by more than one author. The majority of high-profile collaborative blogs are based around a single uniting theme, such as politics or technology. In recent years, the blogosphere has seen the emergence and growing popularity of more collaborative efforts, often set up

by already established bloggers wishing to pool time and resources, both to reduce the pressure of maintaining a popular website and to attract a larger readership.

Micro blogging:

Micro blogging is the practice of posting small pieces of digital content—which could be text, pictures, links, short videos, or other media—on the Internet. Micro blogging offers a portable communication mode that feels organic and spontaneous to many and has captured the public imagination. Friends use it to keep in touch, business associates use it to coordinate meetings or share useful resources, and celebrities and politicians (or their publicists) microblog about concert dates, lectures, book releases, or tour schedules. A wide and growing range of add-on tools enables ^sophisticated updates and interaction with other applications. The resulting profusion of functionality is helping to define new possibilities for this type of communication.[31] Examples of these include Twitter, Facebook, Tumblr and, by far the largest, Web.

Corporate and organizational blogs

A blog can be private, as in most cases, or it can be for business purposes. Blogs used internally to enhance the communication and culture in a corporation or externally for marketing, branding or public relations purposes are called corporate blogs. Similar blogs for clubs and societies are called club blogs, group blogs, or by similar names; typical use is to inform members and other interested parties of club and member activities.

Aggregated blogs

Individuals or organization may aggregate selected feeds on specific topic or product and provide combined view for its readers. This allows readers to concentrate on reading instead of searching for quality on-topic content and managing subscription. Many such aggregation called planets from name of Planet (software), that perform such aggregation, hosting sites usually have planet sub domain in domain name (like http://planet.gnome.org/).

Self Check Exercise-7

Q-1: What is corporate blog?

6.8 Social Networking:

Social networking is the practice of expanding the number of one's business and/or social contacts by making connections through individuals.

While social networking has gone on almost as long as societies themselves have existed, the unparalleled potential of the Web to facilitate such connections is only now

being fully recognized and exploited, through Web-based groups established for that purpose.

Based on the six degrees of separation concept (the idea that any two people on the planet could make contact through a chain of no more than five intermediaries), social networking establishes interconnected online communities (sometimes known as social graphs) that help people make contacts that would be good for them to know, but that they would be unlikely to have met otherwise.

Depending on the social media platform, members may be able to contact any other member. In other cases, members can contact anyone they have a connection to, and subsequently anyone that contact has a connection to, and so on. Some services require members to have a preexisting connection to contact other members.

Definition of social network

1. A network of individuals (such as friends, acquaintances, and coworkers) connected by interpersonal relationships <This seems to make sense: partners of the same age, race, religion or educational level ... will reinforce each other's self-esteem, find mutually enjoyable pursuits and receive support from their extended families and social networks.

2. An Online service or site through which people create and maintain interpersonal relationships <And millions of people have become comfortable using smart-phones to share information about themselves, via mobile apps that access social networks such as Face book and Twitter.

Self Check Exercise-8

Q-1: Discuss the term social networking.

6.9 Summary:

There are a few techniques you can use to help them do that. An interactive video gives the viewer the ability to interact with the video content itself through a variety of tools. Users can click, drag, scroll, hover, gesture and complete other digital actions to interact with the video's content, similar to the way they'd interact with web content. Video branching. Allow viewers to choose their own path through your content with video branching, also known as "Choose Your Own Adventure" experiences. As the limited resource of funding has decreased, limited resources now include instructors, parking spaces and buildings. Students now include time as limited resources. Teleconferencing enables institutions to share facilities and instructors which will increase our ability to serve students. Most e-mail systems include a rudimentary text editor for composing messages, but many allow you to edit your messages using any editor you want. Some systems will also provide basic formatting, including bold, italics, font color and HTML. You can use the program to send the message to a recipient by specifying the recipient's address. You can also send the same message to several users at once. A wide and growing range of add-on tools enables ^sophisticated updates and interaction with other

applications. The resulting profusion of functionality is helping to define new possibilities for this type of communication. Examples of these include Twitter, Facebook, Tumblr and, by far the largest, Web. While social networking has gone on almost as long as societies themselves have existed, the unparalleled potential of the Web to facilitate such connections is only now being fully recognized and exploited, through Web-based groups established for that purpose. Social networks are websites and apps that allow users and organizations to connect, communicate, share information and form relationships. People can connect with others in the same area, families, friends, and those with the same interests. Social networks are one of the most important uses of the internet today. Social networking connects individuals and businesses by allowing them to share information, ideas, and messages

6.10 Glossary:

Aggregation: *The process of collecting information from several different websites, newspapers*, databases.

Social media platform: Social media platform means any organization that provides a service for public users to disseminate speech, expression, information, or other content (typically content that includes messages, videos, photographs, and/or sound files) to other users or the public.

Micro blogging: is the practice of posting small pieces of digital content—which could be text, pictures, links, short videos, or other media—on the Internet.

Encyclopedia: A book or set of books that gives information about very many subjects, arranged in the order of the alphabet (= from A to Z).

Computer assisted instruction: Computer-assisted (or aided) instruction" (CAI) refers to instruction or remediation presented on a computer. These tools improve instructional qualities. CAI's were also known as CBTs (Computer based training) when they were used to "train" individuals for vocations.

6.11 Answers to Self Check Exercise

Self Check Exercise-1

Ans-1: Interactive video, an innovation in educational technology, is getting popularity day by day because of its dual functions of providing video pictures and computer assisted instruction. Thus, interactive video makes use of the existing technologies of video and computer -assisted instruction and thereby provides all the advantages of the two media as well as in an effective interaction between them.

Self Check Exercise-2

Ans-1: the amount of information immediately available is enormous because of the immense storage capacity of a video disc.

Self Check Exercise-3

Ans-1: Because of its high controlled nature, learners have hardly any choice over the order of presentation of the material, or the tests.

Self Check Exercise-4

Ans-1: A wiki is a website which allows collaborative modification of its content and structure directly from the web browser.

Self Check Exercise-5

Ans-1: A wiki invites all users to edit any page or to create new pages within the wiki Web site, using only a plain-vanilla Web browser without any extra add-ons.

Self Check Exercise-6

Ans-1: A blog (a truncation of the *expression weblog*) is a discussion or informational site published on the World Wide Web consisting of discrete .entries ("posts") typically displayed in reverse chronological order (the most recent post appears first). Until 2009, blogs were usually the work of a single individual, occasionally of a small group, and often covered a single subject.

Self Check Exercise-7

Ans-1: A type of weblog in which posts are written and published by more than one author.

Self Check Exercise-8

Ans-1: A network of individuals (such as friends, acquaintances, and coworkers) connected by interpersonal relationships <This seems to make sense: partners of the same age, race, religion or educational level ... will reinforce each other's self-esteem, find mutually enjoyable pursuits and receive support from their extended families and social networks.

6.12 References and Suggested Readings:

^abc"wiki". Encyclopedia Britannica 1, London: EncyclopediaBritanriica. Inc.. 2007, retrieved April 10, 2008

^ ab Mitchell, Scott (July 2008), Easy Wiki Hosting. Scott Hansel man's blog, and Snagging Screens.. MSDN Magazine, retrieved March 9, 2010

^ A Cunningham. Ward (June 27, 2002), what is a Wiki. WikiWikiWeb, retrieved April 10, 2008

^ mauimapp.com.Hawaiian Words: Hawaiian to English [Retrieved September19, 2008]

Kala Prakashan Publishers

_ KarpagaKumaravel R. (1998), Educational Applications of Video-

Theory, Research and Practice, Coimbatore: Suri Publishers

_ KarpagaKumaravel R. (1999), Reading in Educational

Technology, Coimbatore: Suri Publishers

_ Kumar, K.L (2000), Educational Technology, New Delhi: New Age International (p) Ltd.

_ Leon (2002) Internet for Everyone. New Delhi: Vikas Publishing House.

_Roblyer, H.D, Edward, Jack and Havriluk (1997) Integrating Educational technology into teaching. New York: Merrill, as Imprint of prentice Hall.

6.13 Terminal Questions

1. What are the characteristics of social networking?
2. What do you understand by the term Wiki?
3. What are the characteristics of interactive video?

Chapter-7

Levels of teaching

Structure

7.1 Introduction

7.2 Learning Objectives

7.3 Levels of teaching

Self Check Exercise-1

7.3.1 Memory Level of teaching-learning

Self Check Exercise-2

7.3.2 Understanding Level of teaching-learning

Self Check Exercise-3

7.3.3 Reflects level of teaching –learning

Self-Check Exercise-4

7.4 Summary

7.5 Glossary

7.6 Answers to self check exercise

7.7 References and suggested readings

7.8 Terminal questions

7.1 Introduction:

The level of teaching generally comprises three levels as stated below. Memory level: Thoughtless teaching. Understanding level: Thoughtful teaching. Reflective level: Upper thoughtful level. The profession of teaching & levels of teaching and imparting knowledge to a learner on any particular subject or skill seems easy but it's quite a tough job. Teachers play a very important role in the life of student's life and thus it is not wrong to say that the teaching job is one of the challenging professions in the world because of the multiple qualities it requires. A teaching job needs passion, dedication, responsible behaviour of shaping the students and the generations to come. Teaching jobs demand different kinds of strategies, techniques, and methods as compared to other professions. Today, in this article we are going to discuss the desired level of thinking about teaching

and how a teacher can use these levels for teaching. There are three levels of teaching teach by Teachers. To achieve the desired educational objectives, the teachers have to keep in mind about the developmental stage of the learners. The computer is known as electronic brain and is a speedy electronic device which is designed to accept and store data information instructions to process the same automatically to produce result according to the given programme in automobiles, engineering and share marketing. Large groups are cost-effective and everyone gets the same information. Long distance telephone calls, national and international televised sporting events, and cable movie channels operate via satellites. Satellites have been used for years. Many blogs provide commentary on a particular subject; others function as more personal online diaries; others function more as online brand advertising of a particular individual or company. We all know that teaching is a purposeful activity. Through teaching the teacher brings a desirable change in the learner. Both the concepts teaching and learning are interrelated to each other. Development of all-round personality of the learner is the final goal of teaching and learning. During teaching an interaction takes place between an experienced person (teacher) and an inexperienced person (student). Here the main aim is to bring change in the behaviour of the student. Teachers teach students at three levels. They have to keep in mind about the developmental stage of the learners so that desired educational objectives can be achieved.

7.2 Learning Objectives: After reading this lesson the students will be able to know about:

The concept of e-mail

The meaning and characteristics of teleconferencing

Meaning of wiki

Meaning and concept of blogging and social networking

Meaning and characteristics of levels of teaching

7.3 Levels of teaching:

Teaching is a goal oriented process and it influences learning. Teaching and learning are closely related and now teaching and learning are considered as one concept. In school situations same content is taught at different levels because it has its own structure. The content structure facilitates teaching to achieve different objectives and to create appropriate learning conditions. The learning conditions and learning objectives fall on a continuum. Therefore teaching situations may be classified according to where they fall on the continuum which ranges from ‘thoughtless’ to most ‘thoughtful’ mode of operations in teaching. The continuum of operation helps in achieving the objectives from ‘knowledge’ to ‘evaluation’ and in creating the condition of learning from ‘stimulus response’ to ‘problem- solving’. There are three levels of teaching.

Self Check Exercise-1

Q-1: What do you mean by teaching?

7.3.1 Memory Level of teaching-learning:

This is the lowest level of teaching. It emphasis on memorization of factual information. It is the initial level of teaching, which is thoughtless. It hardly contributes for the effective growth of students. Normal classroom teaching is mostly dominated by memory level of teaching. The simpler types of learning Gagne's hierarchy of learning such as single learning, stimulus-response learning and the chain learning are achieved through memory levels of teaching. The primary condition of learning such as contiguity, reflection and reinforcement are created by the teacher. Lower level objectives of cognitive domain such as recall and recognition are achieved through the memory level of teaching. Cramming of information is emphasized. Facts and information are forcibly supplied to the brains of child.

Herbert is considered to be the exponent of memory level of teaching.

Characteristics of memory level of teaching-learning -

1. **Understanding, psychological theories and ideas-** Memory level teaching and learning is influenced by the following psychological theories and ideas i.e. Faculty theory, apperception theory, Connectionism theory and conditioning theory.

2. **Objectives-** The main objective to be achieved through the memory level of teaching-learning is the knowledge objective. Here the learner has to acquire the knowledge of desired facts and information through rote learning. The teaching at memory level aims at causing learning that may enable the student-

    1. To train the mental discipline.

    2. To acquire factual information.

    3. To retain the learnt material for longer time.

    4. To recall or produce and recognize the learned material.

3. **The role of teacher-** The teacher plays a very dominant and authoritarian role in the memory level of teaching-learning. He is the sole academic authority that directs, instructs, controls and evaluates. He is very active and his job is to structure and present the content through his own initiative systematically and logically in the class.

4. **The role of learner-** The learner is like a passive listener in the class-room. The activities of the students are directed b the teacher. The students have to carry out instructions of teacher and they cannot initiate in class-room.

Self Check Exercise-2

Q-1: Write a short note on Memory level of teaching-learning.

7.3.2 Understanding Level of teaching-learning:

The understanding level of teaching -learning is next to memory level of teaching. So memory is a pre-requisite for understanding level of teaching. The teacher develops competency among the student to recognize, explain and use principles. Here emphasis is given to discriminate between elements, to notice the commonalities in them and to find out the relationship between these elements to form a rule or principle. So understanding level of teaching turns in to thoughtful teaching. Teacher provides opportunities to students to develop intellectual behavior. Both the students and teacher actively participate in the teaching-learning process. The higher types of learning of Gagne's hierarchy of learning such as verbal association, multiple discrimination are achieved through understanding level of teaching. Teaching at reflective level can be successful when teaching at memory level and understanding level becomes successful.

Characteristics of understanding level of teaching-Learning:

1. Understanding level of teaching-learning involves the psychologies theories such as appreciation theory and the insight theory.

2. **Objectives:** Understanding level of teaching -learning aims to achieve the knowledge objectives as well as understanding objectives.

3. **Nature of subject-** matter and its presentation: In the understanding level the subject matter is quite structured. It is planned, organized and presented in such a way so as to result in meaningful learning. It needs to be linked with the (1) Previous knowledge of the students (2) Utilization for acquiring new facts (3) Application to practical life.

4. **The role of the teacher:** The teacher is a key figure. Like the memory level he plays a very dominant and authoritarian role the understanding level of teaching -learning. This type of teaching-learning is also too much subject -centered. The teacher has an additional responsibility of making the subject-matter quite understandable and meaningful. Here teacher decides the content, determines the sequence and the mode of instruction. He plans the lessons and implements the plan. He inspires, stimulates, guides and controls the learners.

5. **The role of the learner:** The learners here do not remain passive learners but actively participate in to the process by exercising their mind, interesting various experiences etc.

6. **Classroom environment:**

   At understanding level, the classroom environment does not remain dull and uninteresting as prevailed at memory level. There is willing and lively interaction between the teacher and the students. Students enjoy full freedom within the parameters of institutional; norms.

Self Check Exercise-3

Q-1: Write three characteristics of understanding level of teaching learning.

7.3.3 Reflects level of teaching -learning:

This is the highest level of teaching. The pre-requisite for reflective level of teaching-learning are memory and understanding levels of teaching. Teaching is problem centered in nature. The learners are engaged in imaginative and critical thinking to solve the problem. Teacher creates such a problem to the students as arouses their mental tension, The start solving the problems by formulating hypothesis and testing norms. It develops the creative capacities and intellectual behavior of the learner. Teaching at this level develops among the learner the abilities to overcome the barriers and obstacles. Students are able to solve problems through reasoning, critical and creative thinking. So it is most thoughtful type of teaching. The highest type of learning of Gagne's hierarchy of learning i.e. problem solving is achieved through reflective type of teaching. But lot of practical problems arise which become barrier to reflective level of teaching. Rigid schedule of school time-table, rigid structure of content, traditional evaluation system, and lack of freedom in thinking of both the teacher and students are hurdles of the reflective level of thinking.

Characteristics of reflective level of teaching -learning:

1. **Understanding psychological theories and ideas:**

   This level of teaching-learning has its roots in the cognitive field theory of learning Which is also known as the goal insight theory. It emphasis purposeful, goal directed and insightful approach to learning and advocates that the students should team the act and skill of the problem-solving behavior in a scientific manner.

2. **Objectives:** This level has the following three objectives**-**

   (a)To develop problem solving competency among the students.

(b) To develop critical and creative thinking among the students.

(c) To develop independent and original thinking among the students.

3. **Role of the teacher:** At the reflective level of teaching-learning, the teacher does not play the dominant and authoritarian role like memory and understanding level. He has to play a quite responsible, democratic and co-operative role. He has to guide and help the students to discover the facts.

4. **The role of the learner:** At the reflective level teaching- learning, the learner occupies primary place and the teachers place is secondary. The learner has to make use of his cognitive abilities. He has to remain quite active in terms of taking all initiatives.

5. **The nature of motivation:** The nature of motivation that prevails at the reflective level Ife quite intrinsic rather than being extrinsic as happens at the memory and understanding level. The learner remains busy in finding the solutions of the problem. At other times they are busy in re-examining a discovered fact because they feel a sort of psychological tension and intense curiosity for doing so.

6. **The classroom environment:** The classroom environment at the reflective level of teaching -learning is quite open, independent and friendly as well as democratic in terms of healthy interactions.

Self-Check Exercise-4

Q-1: Discuss the role of the teacher and role of the learner in reflective level of teaching –learning.

7.4. Summary:

. Through teaching the teacher brings a desirable change in the learner. Both the concepts teaching and learning are interrelated to each other. Development of all-round personality of the learner is the final goal of teaching and learning. During teaching an interaction takes place between an experienced person (teacher) and an inexperienced person (student). Here the main aim is to bring change in the behaviour of the student. Teachers teach students at three levels. They have to keep in mind about the developmental stage of the learners so that desired educational objectives can be achieved. You can also send the same message to several users at once. This is called broadcasting. In memory level emphasis is laid down on the presentation of the facts and information's and its cramming. Memory level of teaching is a prerequisite for the understanding level of teaching. In understanding level of teaching teacher stresses to make understand to the pupils the generalizations, principles and facts. Reflective level of teaching includes both understanding level and memory level of teaching. Reflective level of teaching means 'problem centered' teaching. In this the classroom environment is open sufficiently. Teacher creates such a problem to the students as arouses their mental tension, the start solving the problems by formulating hypothesis and testing

norms. It develops the creative capacities and intellectual behavior of the learner. Teaching at this level develops among the learner the abilities to overcome the barriers and obstacles. Students are able to solve problems through reasoning, critical and creative thinking. So it is most thoughtful type of teaching.

7.5 Glossary:

Intellectual behavior: Intelligent behavior is the result of knowledge about the world. But not all knowledge comes from experience. There are some things that we only learn and understand through language. Take the word 'hungry' for instance.

Problem centered teaching: Problem-based learning (PBL) is a student-centered approach in which students learn about a subject by working in groups to solve an open-ended problem. This problem is what drives the motivation and the learning.

Broadcasting: Broadcasting is the distribution of audio or video content to a dispersed audience via any electronic mass communications medium, but typically one using the electromagnetic spectrum (radio waves), in a one-to-many model.

Extrinsic: Not essential or inherent; not a basic part or quality; extraneous: facts that are extrinsic to the matter under discussion. Being outside a thing; outward or external; operating or coming from without: extrinsic influences.

Critical thinking: Critical thinking is a kind of thinking in which you question, analyze, interpret, evaluate and make a judgment about what you read, hear, say, or write.

Dominant: More powerful, important or noticeable than others

7.6 Answers to Self Check Exercise:

Self Check Exercise-1

Ans-1: Teaching is the practice implemented by a teacher aimed at transmitting skills to a learner, a student, or any other audience in the context of an educational institution.

Self Check Exercise-2

Ans-1: It emphasis on memorization of factual information. It is the initial level of teaching, which is thoughtless. It hardly contributes for the effective growth of students. Normal classroom teaching is mostly dominated by memory level of teaching. The simpler types of learning Gagne’s hierarchy of learning such as single learning, stimulus-response learning and the chain learning are achieved through memory levels of teaching.

Self Check Exercise-3

Ans-1: 1.Understanding level of teaching-learning involves the psychologies theories such as appreciation theory and the insight theory.

2. **Objectives:** Understanding level of teaching -learning aims to achieve the knowledge objectives as well as understanding objectives.

3. **Nature of subject-** matter and its presentation: In the understanding level the subject matter is quite structured. It is planned, organized and presented in such a way so as to result in meaningful learning. It needs to be linked with the (1) Previous knowledge of the students (2) Utilization for acquiring new facts (3) Application to practical life.

Self Check Exercise-4

Ans-1: Role of the teacher: At the reflective level of teaching-learning, the teacher does not play the dominant and authoritarian role like memory and understanding level. He has to play a quite responsible, democratic and co-operative role. He has to guide and help the students to discover the facts.

The role of the learner: At the reflective level teaching- learning, the learner occupies primary place and the teachers place is secondary. The learner has to make use of his cognitive abilities. He has to remain quite active in terms of taking all initiatives.

7.7 References and suggested readings:

^[abc]"wiki". Encyclopedia Britannica 1, London: EncyclopediaBritanriica. Inc.. 2007, retrieved April 10, 2008

^ [ab]Mitchell, Scott (July 2008), Easy Wiki Hosting. Scott Hansel man's blog, and Snagging Screens.. MSDN Magazine, retrieved March 9, 2010

^ A Cunningham. Ward (June 27, 2002), what is a Wiki. WikiWikiWeb, retrieved April 10, 2008

^ mauimapp.com.Hawaiian Words: Hawaiian to English [Retrieved September19, 2008]

Kala Prakashan Publishers

_ KarpagaKumaravel R. (1998), Educational Applications of Video-

Theory, Research and Practice, Coimbatore: Suri Publishers

_ KarpagaKumaravel R. (1999), Reading in Educational

Technology, Coimbatore: Suri Publishers

_ Kumar, K.L (2000), Educational Technology, New Delhi: New Age International (p) Ltd.

_ Leon (2002) Internet for Everyone. New Delhi: Vikas Publishing House.

_Roblyer, H.D, Edward, Jack and Havriluk (1997) Integrating Educational technology into teaching. New York: Merrill, as Imprint of prentice Hall.

7.8 Terminal Questions:

1. What do you mean by teaching? Discuss the characteristics of understanding level of teaching.

2. Discuss in detail the three levels of teaching.

Chapter-8

Stages/Phases of Teaching

Structure:

8.1 Introduction -

8.2 Learning Objectives

8.3 Operations involved in phases of teaching

8.4 Pre- active phase of teaching operations

Self Check Exercise-1

8.5 Operations at the interactive stage of Teaching

Self Check Exercise-2

8.6 Operations at the post active stage of Teaching

Self Check Exercise-3

8.7 Summary

8.8 Glossary

8.9 Answers to self check exercise

8.10 References and suggested readings

8.11 Terminal Questions

8.1 Introduction:

Teaching is not a simple task. Teaching is the practice implemented by a teacher aimed at transmitting skills (knowledge, know-how, and interpersonal skills) to a learner, a student, or any other audience in the context of an educational institution. Teaching is closely related to learning, the student's activity of appropriating this knowledge. Teaching is fundamentally a process, including planning, implementation, evaluation and revision. Planning and teaching a class are familiar ideas to most instructors. More overlooked are the steps of evaluation and revision. By exploring the relationships between different concepts, students are encouraged to analyze and evaluate information, and make connections between different subjects. This helps to build problem-solving skills, which

are essential for success in the real world. The successful completion of the teaching act needs planning and careful execution. At first, the factual knowledge could seem unrelated to a learner. By keeping the key concept in mind when planning and teaching, it is possible for the learner to make links and put their understanding into context. Teaching is intimate contact between a more mature personality and a less mature one which designed to further the education of the latter". Morrison (1934), Dewey (1934) expressed this concept of teaching by an equation. "Teaching is learning as selling is to buying". In the words of John Brubacher (1939), "Teaching is arrangement and manipulation of a situation in which there are gaps or obstructions which an individual will seek to overcome and from which he will learn in the course of doing so". B.O. Smith defined teaching as "Teaching is a system of actions intended to induce learning". According to Gage (1963), "Teaching is a form interpersonal influence aimed at changing the behaviour potential another person". Smith in 1963 further extended the definition of teaching .Teaching is a system of actions involving an agent, an end in view and a situation including two sets of factors those over which the agent has no control (class size, characteristics of pupils, physical facilities, etc.) and those which teaching has to proceed in sequential steps. These steps or stages are known as phases of teaching. Jackson divides the act into three stages or phases:

1:- PRE-ACTIVE PHASE

2:- INTER-ACTIVE PHASE

3:- POST-ACTIVE PHASE

8.2 Learning Objectives:

After the study of this chapter the students will be able to know about:

Meaning and concept of different phases or stages of teaching.

Meaning and operations involved in Pre-active stage of teaching.

Meaning and operations involved in Inter-active stage of teaching.

Meaning and operations involved in Post-active stage of teaching.

8.3 Operations involved in phases of teaching

The operations of teaching are most important because these operations create the situation for learning. The operation of teaching can be divided into three phases:

Philip W. Jackson analyses the teaching systematically in three stages

Stage1 pre-active phase of teaching

Stage 2 inter-active phase of teaching

Stage 3 post-active phase of teaching

The each phase of teaching involves s^cific type operations. These have been discussed as under:

8.4 Pre- active phase of teaching operations:

It is the stage of planning of teaching. All that a teacher plans before going to classroom to deal with students or to teach.

In pre active stage of teaching the following operation or sub stages are involved.

1. Formulation goals

The teacher formulates in detail the instructional or teaching objectives in behavioural terms by using taxonomy of educational objectives. These objectives are of two type entering behaviour of learners and terminal behaviour of learners.

2. Arrangement of the ideas and Styles of Teaching

The teacher has to arrange sub contents in a logical sequence in such a way that it should function empirically. It means subcontinents should be so arranged that it should facilitate the transfer of learning.

3. Decision making about the strategies of teaching

The teacher has to select appropriate strategies of teaching keeping in view nature and structure of the content and objectives of teaching. This operation is very important in teacher education programme. Such skills and abilities should be emphasizing during the teacher training courses.

4. Decision making about the subject matter

The teacher decides about the content to be taught to the students and structure of the content at understanding and reflective level. This decision is based on the following considerations:

A. Demand of the curriculum prescribed for the students

B. The entering behaviour and needs of the students.

C. Level of motivation of the learners.

D. Development of teaching strategies

The teacher has to decide beforehand or in advance about strategies, the tactics which he has to use during the course of his classroom teaching. When will he use questioning, when lecturing; when will he/she show pictures, charts, models and when will he use blackboard; when recapitulation or evaluations etc.

Self Check Exercise-1

Q-1: How will you explain the term decision making about the strategies of teaching?

8.5 Operations at the interactive stage of Teaching

The interactive stage of teaching includes all those behaviors, activities which a teacher uses after entering the classroom. The interactive stage involves all activities in presenting the subject-matter.

According to P.W. Jackson [1966]

During the interactive phase: “The teacher provides pupil verbal stimulation of various kind, make explanations, ask questions, listen to student responses and provide guidance."The following activities are at interactive stage of teaching-

Sizing up the class

Diagnoses of the learners.

Action or reaction [initiation or response].

Selection of stimuli.

Selection of stategies.

Developmentof statergies.

Sizing up the class

As the teacher enters the class, he perceives the size of the class and moves his eyes on the faces of the students. He locates or identifies spot which may be troublesome or helpful for him. He identifies which faces are discouraging or encouraging to him. Thus he tries to size up the class group before the teaching. Similarly, the students also size up the personality of teacher within a few initial seconds. The stage requires that teacher must look like a teacher first. His dress is more important.

Diagnoses of the learner

The teacher tries to diagnoses the level of their achievements in three areas;

(a) Abilities, (b) Attitude and interest, (c) Academic background.

The diagnosis work may be done by asking some questions or by assessing their performances and behavior potential by providing opportunities for performing and behaving. Through verbal and non-verbal interaction, the students also get opportunity to assess and diagnose the abilities, aptitudes, attitudes, interest and behavior performance of their own responses and reactions for contributing towards effective interaction in the teaching act.

Action of achievement

Action and reaction process plays the central role in the task of classroom interaction. It is the actual interaction between the teacher and the taught. The moment the teacher goes in the classroom, non-verbal reaction starts between him and the students. With his speech starts the verbal reaction between the two. Through more questions put by the teacher to the students, the reaction process gains momentum. When the students also put questions to the teacher, it makes teaching more effective for the students. Action and reaction makes teaching a success.

Selection of stimuli-The stimuli in the action or activity of teaching can be verbal as well as non-verbal (praise, gestures, expressions through face, eyes) the way the teacher stands and moves around, etc.

Presentation of the Stimuli- The teacher must know the three things in presenting the stimuli: (a) Form (b) context and (c) order or Sequence.

Feedback or Reinforcement- It is a condition which will increase the probability that particular response will be repeated in future. It may be of two types;

Positive Reinforcement - Which may increase the probability of occurring the desirable response or behavior, e.g., praise, appreciation, reward, knowledge of result, etc?

Negative Reinforcement- Which may decrease the probability of re-occurring the undesirable response or behavior?

Development of strategies- The strategies of reinforcing the students, of controlling their verbal and non verbal behaviour are used for imparting the subject-content effectively while a teacher teaches in the classroom.

Self Check Exercise-2

Q-1: Discuss the areas involved in the step diagnosis of the learner.

8.6 Operations at the post active stage of Teaching

Post- active stage of teaching is also known as the evaluative stage of teaching. It is related to both teaching and learning. This stage arises when the teacher left the class and tries to have a look back in to what happened in the class. He continues to think about the meanings and implications of episodes and events even after their disappearance as the interactive stage of teaching has ceased to operate. The teacher

is an introspective mood. While doing so, he processes the reactions of the students towards the overall strategy used by him. Here he makes use of recall, recollection, short notes pertaining to events and episodes which occurred during the interactive stage. The teacher conducts the formal and informal evaluation of his teaching act in his own way. It becomes the basis for planning and implementation of the strategies during the subsequent encounter in the class. This is an evaluative phase of teaching .It includes the teacher task which evaluate student performance based on classroom teaching, the behavioural change of students are assessed at the end of teaching. The oral or written questions are asked at the third stage of teaching. The following are main operations at this stage of teaching.

Defining the exact dimensions of the behavioural change

The teacher evaluates the expected behavioural change with their actual behavioural change during his teaching. Most of the students emit the expected behaviour.

Selecting Appropriate testing Devices

The teacher chooses certain suitable testing techniques and tools to measure the various dimensions of behaviour. The test should be reliable, valid and objective in nature.

Changing or improving strategies of Teaching

The students testing result is also used for evaluating the effectiveness of instructions and teaching strategies. It may provide a basis for improving his teaching by reorienting his teaching and changing strategies of teaching.

Self Check Exercise-3

Q-1: Write a short note on the post-active stage of teaching and learning.

8.7 Summary:

All the stages of teaching are closely inter-related. They represent a continuous cycle of the teaching, influencing and directing each other. While analyzing the nature of teaching, we must not forget the continuity, unity and interrelatedness of these three phases of teaching. The development of teaching models is only in its infancy. A lot of work is to be done in its direction. A teacher must develop his own teaching models which help him to recognize effective teaching by employing his natural behavior patterns in such a way that he is able to engage in a unique magic of its own making. Teaching models may be useful for improving human relation and raising the standard of education. It is very difficult to compare different kinds of models because their approaches and goals are different. Theories need for us to develop our teaching models which may suit to our school. There is a great need for research in education which examines the dimensions of the instructional and nurturing effects of the various models on different types of students. The teacher has to select appropriate strategies of teaching keeping in view

nature and structure of the content and objectives of teaching. This operation is very important in teacher education programme. The teacher conducts the formal and informal evaluation of his teaching act in his own way. It becomes the basis for planning and implementation of the strategies during the subsequent encounter in the class. This is an evaluative phase of teaching .It includes the teacher task which evaluate student performance based on classroom teaching, the behavioural change of students are assessed at the end of teaching. The oral or written questions are asked at the third stage of teaching.

8.8 Glossary:

Subsequent: Subsequent Term means each term following the completion of the Initial Term.

Introspective mood: Someone who is introspective spends considerable time examining his own thoughts and feelings. If you take to your diary after an unhappy break-up, you are being introspective.

Recapitulation: A recapitulation is a short summary. At the end of an hour-long speech, you should probably give a recapitulation if you want your audience to remember anything you've just said. A recapitulation, or "recap," is a summary, review, or restatement.

Reflective level: The term 'reflective level' is indicative of the highest level of thoughtfulness on the part of the teacher as well as the learner.

Sequential steps: Something that is sequential often follows a numerical or alphabetical order, but it can also describe things that aren't numbered but still need to take place in a logical order, such as the sequential steps you follow for running a program on your computer.

8.9 Answers to Self Check Exercise

Self Check Exercis-1

Ans-1: The teacher has to select appropriate strategies of teaching keeping in view nature and structure of the content and objectives of teaching. This operation is very important in teacher education programme. Such skills and abilities should be emphasizing during the teacher training courses.

Self Check Exercis-2

Ans-1: The teacher tries to diagnoses the level of their achievements in three areas;

(a) Abilities, (b) Attitude and interest, (c) Academic background.

The diagnosis work may be done by asking some questions or by assessing their performances and behavior potential by providing opportunities for performing and behaving.

Self Check Exercis-3

Ans-1: Post- active stage of teaching is also known as the evaluative stage of teaching. It is related to both teaching and learning. This stage arises when the teacher left the class and tries to have a look back in to what happened in the class. He continues to think about the meanings and implications of episodes and events even after their disappearance as the interactive stage of teaching has ceased to operate. The teacher is an introspective mood.

8.10 References and suggested readings

Educational Technology by Dr.J.S. Walia

Technological Foundation of Education by R.A. Sharma

Educational Technology Dr.S.P. Kulshreshtha

Advanced Psychology S.K. Mangal

Adams, Thustow (1939). *Motion picture in physical. New York : Teachers college press, Columbia University.*

Archer, James E (1962) "Concept identification as a functional obviousness of Relevant and Irrelevant information" Journal of Experimental Psychology, 63: 616-20.

Bradley, Loy (1963) "Strategy selections and negative instances in concept learning." Journal of Educational Psychology, 54: 154-59.

8.11 Terminal Questions

1. What do you mean by Stages/Phases of teaching? Discuss all the three stages teaching with examples.

2. Explain the operations of interactive stage of teaching. State the difference between pre-active and interactive stage of teaching.

Unit-9

Models of Teaching

Structure:

9.1 Introduction -

9.2 Learning Objectives

9.3 Models of teaching

Self Check Exercise-1

9.4 Characteristics of Model will help us in illustrating the meaning of model

Self Check Exercise-2

9.5 Fundamental elements of teaching model

Self Check exercise-3

Self Check Exercise-4

9.6 Glaser's basic Teaching model

Self Check Exercise-5

9.7 Glaser's Basic teaching Model in terms of Fundamental Elements

Self Check Exercise-6

9.8 Summary

9.9 Glossary

9.10 Answers to Self Check Exercise

9.11 References and Suggested Readings

9.12 Terminal Questions

9.1 Introduction: The core of the process of teaching is the arrangement of environments within which the students can interact. Teaching is a social process, which aims at maximizing learning. It is an intriguing, important and complex process. But

teaching and learning is not related to each other in a bipolar manner. It means where there is teaching, there is learning but where there is learning it is not necessary that it is result of teaching. The learning may be due to some other factor. This is the reason that learning theories have been proved unsuccessful in solving teaching problems. Teaching theories are needed all the time to solve teaching problems. Teaching models cannot be a substitute of teaching theory but they can work as a hypothesis for propounding teaching theories in future. A model of teaching is a plan or pattern that can be used to design face-to-face teaching in classrooms or tutorial settings and to shape instructional materials. They guide the teacher to design instruction to help students achieve various objectives. Teaching models are the basis and first step for the indoctrination of the theory of teaching. In every model, such situations are created in which there is interaction of pupils, causing the achievement of the objective by bringing about changes in the behaviour. Students learn by interacting with those environment and they study how to learn. Models of teaching enable the students to engage in robust cognitive and social task and teach the student how to use them productively. Hence they are specific instructional plans, designed according to the concerned learning theories. It thus provides a comprehensive blue print for curriculum to design instructional materials, planning lessons. From the dictionary meaning the model is a pattern of something to be made or reproduced. Models in general are miniature representatives that summarize data or phenomenon and thus act as an aid to comprehension. They are like reproductions of reality. They are an analytical approach to a meaning that reduces the complexity of direct experience to a more limited scope of human comprehension. Models of teaching are in fact models of learning. As teachers help students to acquire information, ideas, skills, values, ways of thinking and means of expressing themselves, they also teach them how to learn. They are prescriptive teaching strategies designed to accomplish particular teaching goals. When a teacher identifies a goal, selects a particular strategy designed to attain that goal, we can say that he is using a model approach. Simply put, models deal with the ways in which learning environments and instructional experiences can be constructed, sequenced, or delivered. They may provide theoretical or instructional frameworks, patterns, or examples for any number of educational components — curricula, teaching techniques, instructional groupings, classroom management plans, content development, sequencing, delivery, and the development of support materials, presentation methods, etc. Teaching Models serve the following purposes: 1.It helps a teacher to develop his capacity to teach.

9.2 Learning Objectives:

After the study of this chapter the students will be able to know about:

Meaning, types, need and elements of models of teaching

Glaser’s basic Teaching model

Glaser’s Basic teaching Model in terms of Fundamental Elements

9.3 Models of teaching

A model for teaching is a tentative theory of teaching. Silverman differentiates between some of the functions of theories and models. A theory is a system in which the interaction among actual variables is explained, where as a model is an analogy and is evaluated by its utility. Analogy is an abstract entity, therefore it is a danger in the use of model to over generalize.

Now the focus of teaching model is teaching and learning both. Therefore efforts are being made to develop theories of teaching, but so far no final theory of teaching could be formulated.

The best way to proceed in formulating a theory of teaching is to begin with what is known about learning in the laboratory and in the classroom by adopting a model derived from a theory of learning B.F. Skinner revolved model: modification of behavior based upon his theory of operant conditioning.

Self Check Exercise-1

Q-1: What do you mean by the term model of teaching?

Concept and Meaning of communication Model:

Mortenson's view:' In the broadest sense, a model is a systematic representation of an object or event in idealized and abstract form."

Models are generally in the shape of a diagram or graphical representation. There are mathematical models .Models are also known as metaphors .They permit us to see one thing in terms of another.

9.4: Characteristics:

1. Simplified view: The model is designed to provide a view of some complex phenomenon or process; so that basic properties/characteristics may be highlighted. It tries to provide easiness of the complex dynamics to help us better understand the components and process involving the communication behaviour.

2. Representation of reality: Model is representation of reality. It can be an object, event, happening, activity or a process

3. Picture of reality: Models are pictures of reality which a person perceives.

4. Creation of reality: Model is creation of reality, object, and-event in terms of another.

5. Abstraction of reality: Model is an abstraction of reality to understand its essence in a context.

6. Arbitrary in nature: Model is arbitrary in nature as it is a form drawn based on some assumptions.

7. No details: Details are removed or eliminated in the process of abstraction.

8. Concentration on important factors: concentration remains on important factors.

9. Critical features: Model highlights critical features. There is less focus on other features.

10. Nature of communication: A particular communication model tries to clarify the nature of communication.

Self Check Exercise-2

Q-1: Write two characteristics of communication model.

Types of communication Models

Important communication models are described as follows:

1. Aristotle's Model of communication

2. Lasswell's Model of communication

3. Shannon-weaver Mathematical Model

4. Schramm's Interactive Model

5. Barlo's Model of communication

6. Transaction Model of communication

7. SawtoothModel of communication

8. Foulger'sEcological Model of communication

9.5: FUNDAMENTAL ELEMENTS OF TEACHING MODEL

A Teaching Model generally consist of four fundamental elements

1. Focus: The term focus refers to the goal or objective of teaching .The teaching activities are oriented to achieve some goals.

2. Syntax: The syntax of the model involves a description or structure of activities.

3. Social System: The social system of a teaching model includes three things.

a) A description of the kinds of student teacher roles

b) A description of hierarchical relationship

c) A description of the kinds of norms are encouraged and student behaviour which is rewarded.

4. Support system: The support system is needed in order to create the environment specified by the model.

The support system includes two sources:

a) The role of specification for the teacher

b) Requirement of the substantive nature

Self Check exercise-3

Q-1: Write one fundamental element of basic teaching model.

Objectives of teaching models

Models of teaching serve the following purposes:

1. It may help a teacher to develop his capacity to teach more children and create conductive environment for them.

2. It may help curriculum -makers to plan learner centered curriculum which provides variety of educational experiences to children.

3. It may help to make to interesting and effective instructional material and learning sources.

4. It may stimulate to develop the new educational forms and educational opportunities which will replace the schools of today.

5. It may help in formulating a theory of teaching.

Self Check Exercise-4

Q-1: Write one objective of teaching model.

9.6: Glaser's basic Teaching model

Basic teaching model belongs to the category of psychological models of teaching. The basic teaching model was developed by Robert Glaser in 1962 on the basis of psychological principal. It provides a simple but fairly adequate conceptualization of the teaching process.

Assumption and Rationale of Basic Teaching

Glaser's, basic teaching model is developed on the assumption that every lesson assumes some knowledge on the part on the learner. Through instructional procedure, the teacher guides the learner from entry behavior to terminal behavior. Instructional intent yields more and quicker change in behavior.

Components of Basic Teaching Model (steps of teaching)

Glaser's teaching model is called 'basic' because it attempts to explain the entire teaching process into the four basic components or parts, namely.

Instruction objectives, 2.Entering behavior, 3.Instruction procedures, 4 Performance Assessment.

Components of Glaser's Basic Teaching Model

1. Instruction objectives: Instruction objectives are those objectives which the students are expected to achieve upon completion of a part of instruction. Instruction objective are formulated in behavioral terms. The behaviors are specified in terms of student's performance.

Entering behavior: It is essential to determine the entering behavior of the learners before giving instruction. Entering behaviors include those characteristics which are essential pre- requisites for the program. In other words entering behavior implies the initial behavior of the student, i.e., before the beginning of instruction.

Instructional procedures: Instructional procedure is the third but the main component of this model. Instructional procedures describe the teaching process. They represent the methods of teaching, strategies and the teacher -student interaction.

Performance assessment: Performance assessment is related to the task of assessing the performance of the student. It consists of the test and observation used to ascertain how well the student has achieved the instructional objectives. At this step questions are asked to assess the student's learning.

Self Check Exercise-5

Q-1: Write a short note on Glaser's basic teaching model.

9.7: Glaser's Basic teaching Model in terms of Fundamental Elements

1. Focus: Glaser's basic teaching model attempts to pin-point the four basic components, function, processes and activates comprising the entire teaching-learning process. These are:

(1) Instructional objectives.

(2) Entering behaviour.

(3) Instruction procedures and

(4) Performance assessment.

The model also brings into light the sequence to be followed in the instructional process.

1. Syntax: Syntax of the model describes the model in action. Structure of the model is described as under:

(1) Fixing: the objectives and goals which are to be achieved by using the model are fixed up.

(2) Determine the entering behavior: The entering behavior showing the understanding and background of the students is determined

(3) Carrying out the instructional behaviour

(4) Determining the ultimate behavior

2. Principales of Reaction: This element of model refers how teacher will react to the different responses of the student in deferent situation.

(1) Principle of interdependence

(2) Principle of active involvement

(3) Principle of fellow up

3. Social System: The model describes a teacher dominated classroom climate. The teacher formulates objectives, decides about the instructional strategy and techniques of evaluation.

Support System: Suitable and adequate type of environment acts as a support for the success of the model. In the Glaser's Basic Model of teaching suitable teaching strategy are worked out keeping in view the aims and entry behavior of the learners.

Application: Being quite systematic and structured this model is applicable to all types of teaching learning situation. It is applicable in the wide variety of subjects and for all levels of students.

Self Check Exercise-6

Q-1: Describe the term syntax of the model.

9.8 Summary:

A model for teaching is a tentative theory of teaching. Silverman differentiates between some of the functions of theories and models. A theory is a system in which the interaction among actual variables is explained, where as a model is an analogy and is evaluated by its utility. Analogy is an abstract entity, therefore it is a danger in the use of model to over generalize. Theories need for us to develop our teaching models which may suit to our school. There is a great need for research in education which examines the dimensions of the instructional and nurturing effects of the various models on different types of students. Suitable and adequate type of environment acts as a support for the success of the model. In the Glaser's Basic Model of teaching suitable teaching strategy are worked out keeping in view the aims and entry behavior of the learners. Being quite systematic and structured this model is applicable to all types of teaching learning situation. It is applicable in the wide variety of subjects and for all levels of students. In the nine phases, the class room climate is conductive to learning and cooperative. A good deal of freedom should be given for pupil-activities. The teacher is usually the controller and initiator of information. The teaching activates are arranged in logical sequence in advance. The teacher's job is to help the students in dealing with the more complex data and information. The teacher has to encourage the student in processing the data. It has been basically designed to develop thinking capacity. A particular mental task and cognitive task require specific strategy to improve thinking. Glaser's, basic teaching model is developed on the assumption that every lesson assumes some knowledge on the part on the learner. Through instructional procedure, the teacher guides the learner from entry behavior to terminal behavior. Instructional intent yields more and quicker change in behavior.

9.9 Glossary:

Instructional intent: A well-stated objective must be written in terms of what students are expected to do, not what teacher is to do.

Enumeration: The action of establishing the number of something.

Cognitive structure: Cognitive structures are the basic mental pattern people use to process any information.

Generalizations: A general statement that is based on only a few facts or examples; the act of making such a statement.

Hypothesis: An idea that is suggested as the possible explanation for something but has not yet been found to be true or correct.

9.10 Answers to Self Check Exercise

Self Check Exercis-1

Q-1: A model for teaching is a tentative theory of teaching. Silverman differentiates between some of the functions of theories and models. A theory is a system in which the interaction among actual variables is explained, where as a model is an analogy and is evaluated by its utility.

Self Check Exercis-2

Q-1: Picture of reality: Models are pictures of reality which a person perceives.

Creation of reality: Model is creation of reality, object, and-event in terms of another.

Self Check Exercis-3

Q-1: Support system: The support system is needed in order to create the environment specified by the model.

The support system includes two sources:

a) The role of specification for the teacher

b) Requirement of the substantive nature

Self Check Exercis-4

Q-1. It may stimulate to develop the new educational forms and educational opportunities which will replace the schools of today.

Self Check Exercis-5

Q-1: Glaser's teaching model is called 'basic' because it attempts to explain the entire teaching process into the four basic components or parts, namely.

Instruction objectives, 2.Entering behavior, 3.Instruction procedures, 4 Performance Assessment.

Self Check Exercis-6

Q-6: Syntax: Syntax of the model describes the model in action. Structure of the model is described as under:

(1) Fixing: the objectives and goals which are to be achieved by using the model are fixed up.

(2) Determine the entering behavior: The entering behavior showing the understanding and background of the students is determined

(3) Carrying out the instructional behaviour

(4) Determining the ultimate behavior

9.11 References and suggested readings

Educational Technology by Dr.J.S. Walia

Technological Foundation of Education by R.A. Sharma

Educational Technology Dr.S.P. Kulshreshtha

Advanced Psychology S.K. Mangal

Adams, Thustow (1939). *Motion picture in physical. New York : Teachers college press, Columbia University.*

Archer, James E (1962) "Concept identification as a functional obviousness of Relevant and Irrelevant information" Journal of Experimental Psychology, 63: 616-20.

Bradley, Loy (1963) "Strategy selections and negative instances in concept learning." Journal of Educational Psychology, 54: 154-59.

9.12 Terminal Questions:

1. What do you mean by model? Discuss the models of teaching.

2. Discuss Glaser's basic teaching model in detail with suitable example.

Unit-10

Models of Teaching

Structure:

10.1 Introduction -

10.2 Learning Objectives

10.3 Concept Attainment Model (C.A.M)

Self Check Exercise-1

10.3.1 Basic Assumptions of Concept Attainment Model

10.3.2 Strategies in Concept Attainment Model

Self Check Exercise-2

10.3.3 Concept attainment Model in terms of Elements

10.3.4 Principles of concept attainment model

Self Check Exercise-3

10.3.5 Merits of concept attainment model

10.3.6 Demerits of concept attainment model

10.3.7 Suggestions for making the model successful

10.4: Advance Organizer Teaching Model

Self Check Exercise-4

10.5: Problem solving Model

Self Check Exercise-5

10.6: Classroom application

10.7 Summary

10.8 Glossary

10.9 Answers to Self Check Exercise

10.10 References and Suggested Readings

10.11 Terminal Questions

10.1 Introduction: Concept Attainment is a 'backward conceptualizing' approach to making sense of new ideas. It is a teaching strategy characterized (in terms of thinking patterns of the learner) by "a pattern of decisions in the acquisition, retention, and utilization of information that serves to meet certain objectives" (Bruner et al 1956). Bruner's concept attainment model is fun for young learners. It can apply to older learners as well, and in subjects as diverse as language, mathematics and chemistry. Anywhere a comparison can be made, the concept attainment model can be used. The effectiveness of the Concept Attainment Model aligns with principles derived from cognitive psychology and various learning theories. Its emphasis on active engagement, scaffolding of knowledge, and the zone of proximal development resonates with renowned theories such as Piaget's constructivism and Vygotsky's sociocultural theory. t can be thought of as game of 'find the rule.' Concept Attainment is a 'backward conceptualizing' approach to making sense of new ideas. It is a teaching strategy characterized (in terms of thinking patterns of the learner) by "a pattern of decisions in the acquisition, retention, and utilization of information that serves to meet certain objectives" (Bruner et al 1956).

10.2 Learning Objectives:

After the study of this chapter the students will be able to know about:

Concept Attainment Model (C.A.M)

Advance Organizer Teaching Model

Problem solving Model

Classroom application

10.3 Concept Attainment Model (C.A.M):

The Concept Attainment Model of Teaching belongs to the category of Information Processing Models. This model was developed by J.S.Brurier, J.Goodrow and George Austine in l956.Usually it is named as Bruner's Concept Attainment Model. The model emerged out of the study of thinking process in human beings.

10.3.1 Basic Assumptions of Concept Attainment Model:

1. Capacity of concept formation: Our environment is full of diverse things. It would have been for us to adjust in it if we had not been endowed with the capacity to discriminate, to categorize things in groups and to form concepts.

2. Reducing complexities: Categorizing things into groups reduces the complexities of the surrounding environment.

3. Elements of concept: A concept has three elements: (1) Examples, (2) Attributes, and (3) Attribute values.

(1) Examples: are instances of the concept. The examples may be positive or negative. In concept formation, examples of a concept are grouped together.

(2) Attributes: Attributes are the common features or characteristics. They help in placing the examples in the same category.

(3) Attribute values: Each attribute has an attitude value. To have clear understanding of these terms let us have an illustration. If the concept is 'mango' then each fruit is an example.

4. Same strategies: In categorizing or concept formation, although the content of categories may differ from culture to culture, yet all sets of concepts are the product of the same thought process.

5. Two components: The different things are put into categories on the basis of attributes. Categorizing activity has two components:

(1) The act of category formation.

(2) The act of concept attainment.

6. Determining the concept: in concept attainment, the concept is determined in advance and the task is to determine the elements of the concept.

7. Concept formation and concept attainment: Concept formation and concept attainment differ significantly in terms of thinking process. Consequently, they require different teaching strategies. Hilda Taba's Inductive Thinking Model is an example of concept formation.

8. Reception and selection: In identifying the strategies used to attain concepts, a distinction should be made between the two learning conditions of selection and reception.

Self Check Exercise-1

Q-1: Write a short note on Concept Attainment Model.

10.3.2 Strategies in Concept Attainment Model:

Bruner identified four strategies in concept attainment model:

Simultaneous scanning: In this technique, the subject used each positive instance, to deduce those combinations of attribute values which are no longer valid.

Successive scanning: In this strategy the subject makes an overall estimate of each characteristic of the concepts and tests each one by one. This is called successive scanning since the subject tests individual hypothesis about the correct characteristics one at time in succession.

Conservative focusing: In this strategy, each attribute is tested by selecting card that is different from a focus card in only one attribute. If the new card is still a positive instance, then the subject knows that the varied attribute is not part of the concept.

Focus gambling: In this technique, the subject focuses on a correct card, but varies more than one attribute at a time. If the subject encounters a negative instance; he cannot tell which attribute was essential.

10.3.3 Concept attainment Model in terms of Elements:

Focus: The main focus of the model is to develop inductive reasoning of the students, Burner and his associates orient their work for the description of a process by which the students discriminate the attributes of the things, persons, and events and place them into categories.

Syntax: Structure of the model has the following four phases.

Presentation of data: The first phase presents data before the students to speculate about the concept. At first the teacher explains to the students how the activity will go on. All types of instructions are made clear to the students.

Analysis of hypothesis: In second phase students analyze their strategies for attaining concepts in one phase. This phase has following sub-phases:

Formation of hypothesis: Different student's form some hypothesis in their minds and they think of positive and negative examples.

Teacher's reaction: The teacher reacts to it saying whether it is right or wrong.

Rejection or confirmation of hypothesis: If it is wrong the hypothesis of some students stand rejected and whatever, examples they have in their minds stand cancelled.

More examples: The student is able to think of a few more positive and negative examples based on the same hypothesis.

Closure: Phase third provides unorganized data. When among all the hypothesis one is rejected by the teacher, the students have before them many positive and negative examples of the concept.

Practice: The fourth phase gives an opportunity to practice. The students apply that concept.

Principle of reaction: During the process of teaching, the teacher has to react to the responses of the students at every step. Immediate check of wrong answers and acceptance of right answers is a must. For wrong answers, the teacher should immediately inform the students that it is wrong.

Social system: The teaching situations are moderately structures. The teacher has to control all actions of the class-room, but reasonable freedom is given for discussion within different phases of teaching.

Support system: The nature of data should be such that student may understand and identify the concept clearly. The lesson requires concepts which can be arranged so that concept may be drawn from the material.

Application: Concept attainment model is very useful in teaching the concepts through inductive reasoning. Different difficult concepts of various disciplines can be learnt easily by the learner. The model works effectively in class-room for language teaching and mathematics.

Self Check Exercise-2

Q-1: What do you mean by the term principle of reaction?

10.3.4 Principles of concept attainment model:

Bruner's concept attainment model is based on the following principles:

Principles of inductive teaching.

Principle of observation.

Principle of activity.

Principle of imaginary abilities.

Principle of application.

10.3.5 Merits of concept attainment model:

Development of reasoning: The model develops the power of reasoning of the students.

Development of imagination: It develops the imagination abilities of the students.

Intellectual development: The model helps the student's in the intellectual development.

Observation: It helps the students in making good observers.

Analytical abilities: The model develops the analytical abilities of the students.

Active participation: The students remain actively engaged among the teaching-learning process.

Self-study habit: The model develops the habit of self-study among the learners.

No strain: The students learn in a natural way without stress and strain.

Application: It enables the students to apply their knowledge in different situations.

Self Check Exercise-3

Q-1: Write two merits of concept attainment model.

10.3.6 Demerits of concept attainment model:

Absent-minded: Some students remain absent-minded. They do not concentrate on teaching-learning.

Wrong thinking: A student may have wrong hypothesis for some time. He may go on thinking in the wrong direction.

Non-participation: Some students may not take part in the teaching-learning process in the class.

10.3.7 Suggestions for making the model successful:

Small groups: Teaching should be carried on in small groups so that more students may find opportunities to take active part in the learning process.

Instructions: The teacher should give instructions to the whole class.

Examples: The teacher should give one or two positive or negative examples of the concept he wants to teach.

Formation of groups: Then a few groups may be formed with one monitor for each group.

Encouraging participation: Students of each group should be encouraged to take active part.

Guidance: The teacher should be visiting the groups. He should help and guide the students according to their needs and requirements.

Generalizations and conclusions: In the end, all the students may sit together in a big group.

10.4: Advance Organizer Teaching Model:

David P. Ausubel has developed Advance Organizer Teaching model. It is an approach to expository teaching.

Focus:

The main purpose of this model is to facilitate meaningful verbal learning and retention. It has two aspects- first is the development of teaching and second is to facilitate a critical approach of the ideas in the cognitive structure.

Syntax:

It has two faces the first phase is the presentation of the organizer which should be at a more general level, the second phase is the presentation of material itself.

Social system:

The teacher has to present the material in a meaningful sequence. It creates highly structure learning situation. The teacher exercise controls the intellectual structure.

Support System:

The advance organizer depends upon a integral relationship between the conceptual organizer and the rest of the content. The crucial aspects of teaching model are development of organizer and system of presentation. The structure of the material must be organized to that it relates to the organizer.

Classroom Application: if can be used for teaching every subject area but was developed to teach the verbal material rather than to develop skills and mastering of

problem solving. It is a sanative model of teaching because it depends upon the advance organizer's functioning as a conceptual linkage from the linkage of material for the learner. It is an especially suited for written verbal material for imparting knowledge of a subject matter.

Self Check Exercise-4

Q-1: Who developed the Advance Organizer Teaching Model?

10.5: Problem solving Model:

Hilda has developed inductive teaching modal. This modal provides the backbone to studies curriculum.

Focus. The main focus of this model is to develop the mental abilities and give emphasis on concept formation. This involves cognitive tasks in concept formation.

Syntax- The teaching is organized in nine phase. The first three phases are concerned with the concept formation by involving enumeration, grouping and labeling categories. The second three phase are related to the interpretation of data by identifying relationship,

Relationship and drawing inferences. The last three phases are concerned with an application of principles by hypothesizing, explaining hypothesis and verifying the hypothesis.

Social system- In the nine phases, the class room climate is conductive to learning and cooperative. A good deal of freedom should be given for pupil-activities. The teacher is usually the controller and initiator of information. The teaching activates are arranged in logical sequence in advance.

Support system- The teacher's job is to help the students in dealing with the more complex data and information. The teacher has to encourage the student in processing the data. It has been basically designed to develop thinking capacity. A particular mental task and cognitive task require specific strategy to improve thinking.

Self Check Exercise-5

Q-1: Who developed the Problem Solving Model?

10.6: Classroom application-

Taba has designed the model to create inductive thinking among learners. It helps to organize social studies curriculum so that cognitive process may be facilitated. The learning experiences are the basis of information to arrange the content in an effective

sequence. The first three phases are useful in dealing with elementary classes and the last three phases are useful for science and language curriculum.

10.7 Summary: Models of teaching are designed to provide a framework for educators to organize their instructional strategies and enhance the learning experience of their students. The main purpose of models of teaching is to provide a structured approach for teachers to plan and implement effective teaching practices in their classrooms. These models act as the basis for the indoctrination of teaching theories and, therefore, teaching models contribute towards effective and interesting teaching.... Read more at: https://www.adda247.com/teaching-jobs-exam/models-of-teaching. These models are used to achieve the specific objectives of various school subjects and make them more effective and purposive. Teaching models are helpful to develop social efficiency, personal abilities, cognitive abilities and behavioural aspects of the students.... Read more at: https://www.adda247.com/teaching-jobs-exam/models-of-teaching. The teaching is organized in nine phase. The first three phases are concerned with the concept formation by involving enumeration, grouping and labeling categories. The second three phase are related to the interpretation of data by identifying relationship,

10.8 Glossary:

1. Enumeration: Enumeration is the act of naming things separately, one by one. Learn more about this formal word, its pronunciation, and its translations in different languages.

Hypothesis: A supposition or proposed explanation made on the basis of limited evidence as a starting point for further investigation.

Integral relationship: An approach is to inspire singles and couples to realize their full learning, healing, growing, and awakening potentials to co-create the kind of love relationships.

10.9 Answers to Self Check Exercise:

Self Check Exercise-1

Ans-1: The Concept Attainment Model of Teaching belongs to the category of Information Processing Models. This model was developed by J.S.Brurier, J.Goodrow and George Austine in l956.Usually it is named as Bruner's Concept Attainment Model. The model emerged out of the study of thinking process in human beings.

Self Check Exercise-2

Ans-1: During the process of teaching, the teacher has to react to the responses of the students at every step. Immediate check of wrong answers and acceptance of right answers is a must. For wrong answers, the teacher should immediately inform the students that it is wrong.

Self Check Exercise-3

Ans-1: Development of imagination: It develops the imagination abilities of the students.

Intellectual development: The model helps the student's in the intellectual development.

Self Check Exercise-4

Ans-1. David P. Ausubel has developed Advance Organizer Teaching model. It is an approach to expository teaching.

Self Check Exercise-5

Ans-1: Hilda has developed inductive teaching modal. This modal provides the backbone to studies curriculum.

10.10 References and suggested readings

Educational Technology by Dr.J.S. Walia

Technological Foundation of Education by R.A. Sharma

Educational Technology Dr.S.P. Kulshreshtha

Advanced Psychology S.K. Mangal

Adams, Thustow (1939). *Motion picture in physical. New York : Teachers college press, Columbia University.*

Archer, James E (1962) "Concept identification as a functional obviousness of Relevant and Irrelevant information" Journal of Experimental Psychology, 63: 616-20.

Bradley, Loy (1963) "Strategy selections and negative instances in concept learning." Journal of Educational Psychology, 54: 154-59.

10.11 Terminal Questions:

1. Describe in detail the models of teaching.
2. Discus the importance of problem solving model in education.
3. Discuss in detail the concept attainment model of teaching with its principles and characteristics.
4. Write a note on advanced organizer model of teaching.

****

Unit - 11

Instructional Strategies: Student-Centered & Teacher-Centered Strategies

Lesson Structure

11.1 Introduction
11.2 Learning Objectives
11.3 Instructional strategies: Student and teacher centered
- **11.3.1 Group Discussion**
- **11.3.2 Question answer**
- **11.3.3 Programmed instruction**
- **11.3.4 Brain storming**
- **11.3.5 Role Playing**
- **11.3.6 Problem Solving**

11.4 Self-Check Exercise– 1
11.5 Summary
11.6 Glossary
11.7 Answers to Self-Check Exercise
11.8 References/Suggested Readings
11.9 Terminal Questions

11.1 Introduction

The interaction between teacher and learners is the most important feature of the classroom. Whether helping learners to acquire basic skills or a better understanding to solve problems, or to engage in higher-order thinking such as evaluation, questions are crucial. Of course, questions may be asked by pupils as well as teachers: they are essential tools for both teaching and learning.

For teachers, questioning is a key skill that anyone can learn to use well. Similarly, ways of helping pupils develop their own ability to raise and formulate questions can also be learned. Raising questions and knowing the right question to ask is an important learning skill that pupils need to be taught.

11.2 Learning Objectives

After going through this lesson, you should be able to:

- Explain the instructional stratigies
- Discuss the lecture cum demonstration method
- Discuss the group discussion and brain storming
- Discuss the role playing and problem solving

11.3 Instructional strategies: Student and teacher centered

B.O. Smith, “The term strategy refers to pattern of that serve to attain certain outcome and to guard against certain others”.

I.K. Davis, “Strategies are broad methods of teaching”.

11.3.1 Group Discussion

Nowadays Group Discussion is being extensively used along with personal interviews for the final selection of candidates. It plays a main role in selecting the best among the best. Having scored high marks, students who get selected for a higher/another course or employment are placed on a par - on equal footing - based on their age, qualification and experience. It becomes necessary to conduct further screening for choosing a few among many. It is here, the Group Discussion plays an important part. It helps in choosing the socially suitable candidate among the academically superior achievers. It is one of the best tools to study the behavioral and attitudinal responses of the participants.

Rightly speaking, Group Discussion is more a technique than a conventional test. In fact it is one of the most important and popular techniques being used in a number of personality tests. It is a technique or a method used for screening candidates as well as testing their potential. It is also designed as a situation test wherein a sample of a candidate's group worthiness and potential as a worker comes out quite explicitly

a. Features of Group Discussion

1.Group Discussion, as the name itself indicates, is a group activity carried out by participating individuals. It is an exchange of ideas among the individuals of a group on a specific topic.

2 It is used as reliable, testing device - mainly as a tool to assess all the candidates in a group at one go -in order to select the best in comparative perspective.

3.Group Discussion is an informal discussion in which participants of the same educational standard discuss a topic of current interest.

4.It is also known as leaderless discussion. It means its aim is to find out the natural leadership level of the candidates. Strictly speaking, no one from the group or outside will be officially designated as leader or president or chairman or anything of the sort. Even the examiner or supervisor who launches the discussion will retire to the background. No one will participate or intervene in the deliberations of the group.

It is necessary that you should understand the nature of the G D technique as well as its rationale and purpose. It is very important to know what personality traits the examiners would focus on. If you want to attain success in this challenge test, you should analyze its ingredients and grasp its techniques.

As all the participants in a Group Discussion are rivals, there is bound to be competition and clash of interests among them. Everyone in the group would be keen to top in the discussion, resulting in a good deal of rivalry and maneuvering for situations of advantage. Thus in the group discussion- in this free for all- you have to manage others and get the cooperation of the group by continuously relating to situations as they keep developing and changing. The dynamics of the

group will stimulate each candidate to reveal his/her inherent natural leadership qualities in a spontaneous manner. But only those who remain alert by adapting himself / herself to the changing situations as they emerge, and only those who utilize the opportunities with enterprise, imagination and tact come out successfully.

Under these circumstances, the conduct and behavior of each candidate will bring to the surface his or her natural leadership, social, dynamic and organizing abilities in a spontaneous manner. Group Discussion is essentially a verbal-oriented performance and you have to talk your way out. With one's gift of the gab or power of expression. GD also requires the verbal display of the knowledge of the candidate. The more your ideas and the more your knowledge of the subject, the more interested, enthusiastic and confident you would become and the more fluent and forceful would be your speech and contribution to the discussion.

11.3.2 Question answer

Question and answer teaching gives the student the opportunity to reflect his inquiries and needs for further information. At the same time, by soliciting answers to key questions the teacher gains some insight into the class' progress.

Involving a class in questions and answers is the first step away from monological teaching. It is the initial recognition that learning takes place when students are verbally as well as intellectually involved in the educational situation. Here we are attempting to secure verbal interaction. Actually interaction may be of several types and is essential to all learning. Most educators agree that mental interaction is not sufficient but should be accompanied by some form of student expression or reaction. The student must comprehend truth in his own mind, then express it in his own words.

Can we really take time to allow the student to insert his questions? After all, the teaching session is short, and we have much objective truth to communicate! The basis for questions and answers in Christian teaching can be traced to the ministry of our Lord, who frequently utilized this technique both as a complete methodology in itself, and as a supplement to other types of methodology. Although Marshall McLuhan may argue that the "medium is the message," the Christian educator may counter that the message controls the medium. To put it another way, what we have to say will have a profound influence on how we say it. Dr. Clifford Anderson of Bethel Seminary writes that "methods may be likened to bridges or roadways that are employed by persons who are concerned to assist others to an objective. They are means to an end. Our experiences in Christ and His body, the Church, give rise to mission which in turn stimulates interest in method." Methods must therefore beboth theologically accurate and educationally adequate. The question and answer method can meet both these requirements.

A. Advantages and disadvantages of Question Answer Method of teaching

This method is quite important. Through question, an attempt is made to ascertain and evaluate the knowledge of students in regard to the subject. This method ensures participation. The teacher should ask question and the student should be encouraged to ask questions.

About this method a renowned author says, "If the teacher does not know the answer he should admit it and either he ask the students to find it in the text-book or offer to find out the answer himself. No teacher can answer all the question which can be asked in yes or no. The students should be asked such questions which compel them to think the matter over. If the students cannot answer the question fully, his partial answer should be accepted and another student may

be asked to improve upon it. The teacher himself be in regular habit of reading latest texts as students should also be asked to find answers in authoritative texts".

In this method the teacher controls the situation. Generally informal lesson is developed by means of question-answer method.

B. Advantages of Question-Answer Method

(i) It can be used in all teaching situations.

(ii) It helps in developing the power of expression of the students.

(iii) It is helpful to ascertain the personal difficulties of the students.

(iv) It provides a check on preparation of assignments.

(v) It can be used to reflect student's background and attitude.

(vi) It is quite handy to the teacher when no other suitable teaching method is available.

C. Disadvantages

(i) It requires a lot of skill on the part of teacher to make a proper use of this method.

(ii) It may sometime mar the atmosphere of the class.

(iii) This method generally is quite embracing for timid students.

(iv) It is time consuming

11.3.3 Programmed instruction

Programmed Instruction was developed by B. F. Skinner. Even though he used this model in experimental settings throughout the 1920s and 1930s, it wasn't until the 1950s when him and J. G. Holland began implementing programmed instruction at Harvard. As an educational technique, it is characterized by self-paced, self-administered instruction, which is presented in a logical sequence and with multiple content repetitions. Skinner argues that learning can be accomplished if the content is divided into small, incremental steps, and if learners get immediate feedback, reinforcement and reward. As a method, it can be applied through "***teaching machines***", and with computer-assisted-instruction.

A. The 2 models of Programmed Instruction Educational Model

The two basic and most widely known models of Programmed Instruction are the following:

1. The first is ***linear*** and it's how Skinner's teaching machines presented material. According to this model, the content is divided into a sequence of small and unchanged steps, where learners respond at their own pace and are immediately provided with the results.

2. The second model is ***branching*** and was introduced by Norman Crowder. Based on this problem-solving model, students have to address a situation or a problem through a set of alternative answers. If they answer correctly, they move on to the next set. If their

answer is wrong, they are detoured to remedial study, depending on their mistake. This process is repeated for each step throughout the entire program.

B. The Skinner's Programmed Instruction Educational Model Principles

- ***Learners should be active*** Instructors are asking questions to confirm learners' comprehension. The extent of understanding is reflected by the answers.

- ***On the spot feedback*** Instructors are providing immediate feedback to learners. As soon as they know if the response was right or wrong, they proceed to the next question or they retest what was not understood.

- ***Gradual steps*** Learners should be examined on small chunks of information, something that will prevent them from failing a question. Learners should feel they are making progress, something that will encourage them.

- ***Self-pacing*** Each learner has his or her own pace. Instructors should respect this diversity and allow them to decide on the desirable speed of learning.

- ***Learner verification*** The purpose of this model is to examine about whether learning was established, not if the program was good based on a specialist's POV. Learners should be allowed to evaluate the instructional program under development and instructors should modify accordingly.

11.3.4 Brain storming

Brainstorming is a combination of a relaxed, informal approach to problem-solving and lateral thinking. People are asked to find ideas and thoughts that can at first seem to be a bit irrelevant. The idea is to use some of these ideas to form original, creative solutions to problems. Even some seemingly useless ideas can spark still more ideas. The goal of brainstorming is to direct people to new ways of thinking and break from the usual way of reasoning.

The most important thing about brainstorming is that there should be no criticism of ideas. students try to open up possibilities and discard wrong assumptions about the limits of the problem. Judgments and analysis of ideas are explored after the brainstorming process while focus should be at this stage on idea generation.

Brainstorming contributes to the generation of creative solutions to a problem. It teaches students to breaks away from old patterns of reasoning to new unexplored paths of thinking.

- Problem solving has become part and parcel of teaching and learning process. Brainstorming can make group problem-solving a less sterile and a more satisfactory process.

- It can be used with your class to bring the various students experiences into play. This increases the richness of ideas explored, particularly before reading, listening and writing activities.

- Brainstorming is fun. That's why it helps student-student and students-teacher relationships to get stronger as they solve problems in a positive, stress-free environment.

Brainstorming technique was first designed to be used with groups, but it can also be used by a single person privately to generate ideas.

11.3.5 Role Playing

Role play is learning how to best handle a situation by practicing interactions and trying out different approaches. Students may act out situations, problems, and issues in a safe setting and develop skills that promote sexual health. Role play is a very effective instructional method proven to increase self-efficacy and impact student behaviour. Role play requires careful preparation to ensure a structure emphasizing healthy sexuality through practicing basic learning's, such as abstinence negotiation. Participation in course role plays have led to higher satisfaction of usefulness and greater teaching improvement.

Advantage

- Provides opportunity for students to assume roles of others, therefore appreciating another person's point of view.
- Allows for a safe exploration of solutions and an opportunity to practice sexual health skills.
- Tends to motivate students to learn.
- Promotes and develops critical and creative thinking, attitudes, values, and interpersonal and social skills.

Procedure

1. Prepare class for role-play

- Present an artificial problem, situation or event that represents some aspect of reality.
- Define the problem, situation and roles clearly.

2. **Give clear instructions**

- Determine whether role plays will be carried out using student volunteers in front of the class (the teacher may or may not play a role), in partnerships/small groups with every student playing a role, or in small groups with role-players and observers.
- Divide students into groups, if appropriate, use small group activities.
- Model the skill with a scripted role play.
- Suggest including a few-minute time limit; and the opportunity to perform more than one skill practice.

11.3.6 Problem Solving

Problem-solving is a process—an ongoing activity in which we take what we know to discover what we don't know. It involves overcoming obstacles by generating hypo-theses, testing those predictions, and arriving at satisfactory solutions.

Problem-solving involves three basic functions:

1. Seeking information

2. Generating new knowledge

3. Making decisions

Problem-solving is, and should be, a very real part of the curriculum. It presupposes that students can take on some of the responsibility for their own learning and can take personal action to solve problems, resolve conflicts, discuss alternatives, and focus on thinking as a vital element of the curriculum. It provides students with opportunities to use their newly acquired knowledge in meaningful, real-life activities and assists them in working at higher levels of thinking.

Here is a five-stage model that most students can easily memorize and put into action and which has direct applications to many areas of the curriculum as well as everyday life:

Here are some techniques that will help students understand the nature of a problem and the conditions that surround it:

List all related relevant facts.

Make a list of all the given information.

Restate the problem in their own words.

List the conditions that surround a problem.

Describe related known problems.

For younger students, illustrations are helpful in organizing data, manipulating information, and outlining the limits of a problem and its possible solution(s). Students can use drawings to help them look at a problem from many different perspectives.

1. **Understand the problem.** It's important that students understand the nature of a problem and its related goals. Encourage students to frame a problem in their own words.

2. **Describe any barriers.** Students need to be aware of any barriers or constraints that may be preventing them from achieving their goal. In short, what is creating the problem? Encouraging students to verbalize these impediments is always an important step.

3. **Identify various solutions.** After the nature and parameters of a problem are understood, students will need to select one or more appropriate strategies to help resolve the problem. Students need to understand that they have many strategies available to them and that no single strategy will work for all problems. Here are some problem-solving possibilities:

- **Create visual images.** Many problem-solvers find it useful to create “mind pictures” of a problem and its potential solutions prior to working on the problem. Mental imaging allows the problem-solvers to map out many dimensions of a problem and “see” it clearly.

- **Guesstimate.** Give students opportunities to engage in some trial-and-error approaches to problem-solving. It should be understood, however, that this is not a singular approach to problem-solving but rather an attempt to gather some preliminary data.

- **Create a table.** A table is an orderly arrangement of data. When students have opportunities to design and create tables of information, they begin to understand that they can group and organize most data relative to a problem.

- **Use manipulatives.** By moving objects around on a table or desk, students can develop patterns and organize elements of a problem into recognizable and visually satisfying components.

- **Work backward.** It's frequently helpful for students to take the data presented at the end of a problem and use a series of computations to arrive at the data presented at the beginning of the problem.

- **Look for a pattern.** Looking for patterns is an important problem-solving strategy because many problems are similar and fall into predictable patterns. A pattern, by definition, is a regular, systematic repetition and may be numerical, visual, or behavioral.

- **Create a systematic list.** Recording information in list form is a process used quite frequently to map out a plan of attack for defining and solving problems. Encourage students to record their ideas in lists to determine regularities, patterns, or similarities between problem elements.

4. **Try out a solution.** When working through a strategy or combination of strategies, it will be important for students to …

    - **Keep accurate and up-to-date records of their thoughts, proceedings, and procedures.** Recording the data collected, the predictions made, and the strategies used is an important part of the problem solving process.

    - **Try to work through a selected strategy or combination of strategies until it becomes evident that it's not working, it needs to be modified, or it is yielding inappropriate data.** As students become more proficient problem-solvers, they should feel comfortable rejecting potential strategies at any time during their quest for solutions.

    - **Monitor with great care the steps undertaken as part of a solution.** Although it might be a natural tendency for students to “rush” through a strategy to arrive at a quick answer, encourage them to carefully assess and monitor their progress.

    - **Feel comfortable putting a problem aside for a period of time and tackling it at a later time.** For example, scientists rarely come up with a solution the first time

they approach a problem. Students should also feel comfortable letting a problem rest for a while and returning to it later.

5. **Evaluate the results.** It's vitally important that students have multiple opportunities to assess their own problem-solving skills and the solutions they generate from using those skills. Frequently, students are overly dependent upon teachers to evaluate their performance in the classroom. The process of self-assessment is not easy, however. It involves risk-taking, self-assurance, and a certain level of independence. But it can be effectively promoted by asking students questions such as “How do you feel about your progress so far?” “Are you satisfied with the results you obtained?” and “Why do you believe this is an appropriate response to the problem?”

Self-Check Exercise– 1

1. What is the primary purpose of a group discussion?
    a. To compete with each other
    b. To share ideas and perspectives
    c. To criticize others' opinions
    d. To work individually
2. In a group discussion, members _____ their thoughts and opinions on a given topic.
3. True or False: Group discussions are only effective if dominated by one or two outspoken individuals.
4. What is the primary function of a question-answer session?
    a. To confuse participants
    b. To test understanding and clarify doubts
    c. To discourage participation
    d. To memorize facts
5. During a question-answer session, participants ask questions to seek _____.
6. True or False:Question-answer sessions are primarily one-way communication.
7. What is a characteristic feature of programmed instruction?
    a. Passive learning
    b. Linear progression
    c. Memorization only
    d. Group learning only

11.4 Summary

Instructional strategies encompass a range of teaching methods that can be broadly categorized into student-centered and teacher-centered approaches. These strategies are designed to facilitate learning, engage students, and achieve specific educational objectives. The topic covers several key instructional techniques: Group discussion encourages collaborative learning by allowing students to share ideas and perspectives on a given topic. Question-answer techniques involve the teacher posing inquiries to stimulate critical thinking and assess understanding. Programmed instruction offers a structured, step-by-step approach to presenting new material, often utilizing technology or specially designed materials. Brainstorming is a creative technique that fosters idea generation and innovative thinking among students. Role-playing allows learners to enact scenarios, developing empathy and practical skills through experiential learning. Problem-solving strategies challenge students to identify issues, analyze information, and develop solutions, honing their critical thinking and decision-making abilities. Each of these strategies has its own strengths and is particularly effective in certain learning

contexts. They can be used individually or in combination to create diverse and engaging learning experiences. The choice of strategy often depends on the subject matter, learning objectives, student characteristics, and available resources. By employing a variety of these instructional approaches, educators can cater to different learning styles, promote active participation, and enhance overall educational outcomes.

11.5 Glossary

Instructional strategies: Methods and techniques used by educators to facilitate learning and help students achieve specific learning goals.
Student-centered approach: An educational approach that focuses on the needs, abilities, interests, and learning styles of students, with the teacher acting as a facilitator.
Teacher-centered approach: An educational approach where the teacher directs the learning process and is the primary source of information.
Group Discussion: A collaborative learning method where students exchange ideas, opinions, and knowledge on a specific topic under the guidance of a teacher.
Question-answer: An instructional technique where the teacher poses questions to students to stimulate thinking, assess understanding, and encourage participation.
Programmed instruction: A method of presenting new subject matter to students in a graded sequence of controlled steps, often using technology or specially designed textbooks.
Brainstorming: A creative group activity where participants generate a large number of ideas or solutions to a problem without criticism or judgment.
Role-playing: An instructional strategy where students act out characters or scenarios to explore real-life situations, develop empathy, and practice skills.
Problem-solving: An approach that encourages students to identify issues, analyze information, and develop solutions, often involving critical thinking and decision-making skills.

11.6 Answers to Self-Check Exercise – 1

1. To share ideas and perspectives
2. Exchange
3. False
4. To test understanding and clarify doubts
5. information or clarification
6. False
7. Linear progression

11.7 References/Suggested Readings

Abbott, M., Greenwood, C. R., Buzhardt, J., & Tapia, Y. (2006). Using technology-based teacher support tools to scale up the ClassWide Peer Tutoring Program. *Reading & Writing Quarterly, 22* (1), 47-64.

Billig S. H., Sherry, L., & Havelock, B. (2005). Challenge 98: sustaining the work of a regional technology integration initiative. *British Journal of Educational Technology* , 36(6), 987-1003.

Blumenfeld, P., Fishman, B. J., Krajcik, J., & Marx, R. W. (2000). Creating usable innovations in systemic reform: Scaling up technology-embedded project-based science in urban schools. *Educational Psychologist* , 35(3), 149-164.

CEO Forum. (2000). *The power of digital learning: Integrating digital content. The CEO Forum school technology and readiness report, year three* . Washington, DC: CEO Forum on Education and Technology.

Dede, C., Honan, J., & Peters, L. (Eds.). (2005). *Scaling up success: Lessons from technology-based educational improvement* . San Francisco, CA: Jossey-Bass.

Desimone, L. M., Porter, A. C., Garet, M. S., Yoon, K. S., & Birman, B. F. (2002). Effects of professional development on teachers' instruction: results from a three-year longitudinal study. *Educational Evaluation and Policy Analysis* , 24(2), 81-112.

Elmore, R. F. (1996). Getting to scale with good educational practice.*Harvard Educational Review* , 66(1), 1-26.

Ely, D. (1990). Conditions that facilitate the implementation of educational technology innovations. *Journal of Research on Computing in Education* , 23(2), 298.

Ertmer, P. A. (2005). Teacher pedagogical beliefs: the final frontier in our quest for technology integration? *Educational Technology Research and Development* , 53(4), 25-39.

Garet, M. S., Porter, A. C., Desimone, L., Birman, B. F., & Yoon, K. S. (2001). What makes professional development effective? Results from a national sample of teachers. *American Educational Research Journal,*38(4), 915-945.

Glazer, E., Hannafin, M. J., & Song, L. (2005).Promoting technology integration through collaborative apprenticeship. *Educational Technology Research and Development* , 53(4), 57-67.

11.8 Terminal Questions

- Give the detail on instructional stratigies? Try to develop the self instructional material on any classon any topic at school level?
- Discuss the steps you would take to facilitate an effective group discussion in a classroom setting.Describe one advantage of utilizing group discussions in learning environments.
- Compare and contrast open-ended and closed-ended questions in a question-answer session, providing examples of each.Explain the importance of active listening in a question-answer session.
- Discuss the advantages and disadvantages of using programmed instruction in a classroom setting.How does programmed instruction accommodate different learning paces among students?
- Explain the concept of "deferred judgment" in brainstorming.Outline the steps you would take to conduct a successful brainstorming session in a team environment.
- Describe how role-playing can enhance communication skills. Discuss the challenges teachers might face when implementing role-playing activities in the classroom and propose strategies to overcome them.

- Explain the difference between analytical and creative problem-solving approaches.Discuss the importance of fostering problem-solving skills in educational settings and suggest methods to cultivate these skills among students.

- Compare and contrast student-centered and teacher-centered instructional strategies, discussing their respective advantages and disadvantages in educational settings.

****

Unit - 12

Self-Instructional Programme:- Programmed Instructions

Lesson Structure

12.1 Introduction

12.2 Learning Objectives

12.3 Programmed Instruction

Self-Check Exercise - 1

12.4 Summary

12.5 Glossary

12.6Answers to Self-Check Exercise

12.7 References/Suggested Readings

12.8 Terminal Questions

12.1 Introduction

Here we are to talk about technology and the role it plays in 21st century education . Technology is by far the most popular topic concerning 21st century learning and education and many of the videos on Youtube are about just that. Although some of these videos cover other ideas, technology still seems to be the central focus. So the purpose of this article is two-fold: One is to address some of the misconceptions out there about technology and also is about how to implement technology effectively and use in practical pragmatic way. Any learning concerning technology should be based around the theme and objectives of the class. The place of technology in pedagogy is based on various factors and questions of effectiveness, time saving, increased outcomes etc.

12.2 Learning Objectives

After going through this lesson, you should be able to:

- Explain the programmed instructions

12.3 Programmed Instruction

Programmed instruction is a method of presenting new subject matters to students in a graded sequence of controlled steps. Students work through the programmed material by themselves at their own speed and after each step test their comprehension by answering an examination question or filling in a diagram. They are then immediately shown the correct answer or given additional information. Computers and other types of teaching machines are often used to present the material, although books may also be used.

Programmed instruction is an instructional method where learning content is broken down into small sections or short chunks. The behavioural principles devised by Skinner, the famous researcher inbehaviourism, are used in many classrooms around the world today. Programmed instruction is a type of instruction that lends itself to computer-based learning. Programmed instruction was adapted by the American psychologist and learning theorist Robert Mills Gagné who described programmed learning as a part of his classroom teaching. The difference between programmed instruction and programmed learning is that the former concept was devised to modify behaviours whereas the latter was devised to teach facts. Skinner's theory is based on the stimulus-response and reinforcement model of learning. Skinner said that positive reinforcement is important in learning, but teachers use too little of it. He noted learning can be divided into "very small steps and reinforcement must be contingent on the accomplishment of each" step along the way.

In "The Science of Learning and the Art of Teaching", Skinner said that effective instructional materials, which he called programmed instructional materials, should include small steps, frequent questions, immediate feedback, and allow for self-pacing approaches.

programmed instruction, method of presenting new subject matter to students in a graded sequence of controlled steps. Students work through the programmed material by themselves at their own speed and after each step test their comprehension by answering an examination question or filling in a diagram. They are then immediately shown the correct answer or given additional information. Computers and other types of teaching machines are often used to present the material, although books may also be used. Computer-assisted instruction, which both tests students' abilities and marks their progress, may supplement classroom activity or help students to develop ideas and skills independently.

The first teaching machine was invented (1934) by Sydney L. Pressey, but it was not until the 1950s that practical methods of programming were developed. Programmed instruction was reintroduced (1954) by B. F. Skinner of Harvard, and much of the system is based on his theory of the nature of learning. As programming technology developed, so did the range of teaching machines and other programmed instruction materials. Programs have been devised for the teaching of spelling, reading, arithmetic, foreign languages, physics, psychology, and a number of other subjects. Some programs are linear in concept, allowing advancement only in a particular order as the correct answer is given. Others are branching, giving additional information at the appropriate level whether a correct or incorrect answer is given.

Although there has been considerable controversy regarding the merits of programmed instruction as the sole method of teaching, many educators agree that it can contribute to more efficient classroom procedure and supplement conventional teaching methods. Teaching machines enable students to work individually, calling for active participation of the learner. In industry and the armed services, programmed instruction is often used to train personnel.

In the 1950s many of the ideas that had surfaced earlier were clarified and popularised. Programmed instruction was among the first, in historical significance for instructional developments and analytical processes, important to instructional design. This form of instruction is based on the behavioural learning theories.

The early programmed instruction was often delivered by some form of 'teaching machine' but later it brought the concept of interactive text. The programmed instruction movement extended the use of printed self - instruction to all school subject areas to adult and vocational education as well (Romiszowski,1997). Later as the technology developed other media, such as radio, television video and computer, came of use.

The researches and findings of Skinner were of great importance for the developments in program instruction and before going any further I would like to inform about his findings.

Behavioural concepts and the implication for Instructional Design.

Skinner's shaping technique have been used as overall guide to constructing instructional materials, as well as to deliver instruction and evaluating performances.

His model Stimulus - Response is described by Romiszowski (1997) as:

"that learning has occurred when a specific response is elicited by specific situation or stimulus with a high degree of probability. The more likely and predictable the response, the more efficient the learning has been…. These attempt to shape human behaviour by presenting a gradual progression of small units of information and related tasks to the learner. At each stage the learner must actively participate by performing the set task. He is then immediately supplied with feedback in the form of correct answer" (p.16)

The reliance upon specific goal statements is a device that also allows the learners to know specifically when they have achieved their goal. By using such a statement, students can monitor their own progress.

Formulated by this linear approach Skinner introduced in the early 1950s the "teaching machine" which imparted subject matter in easy to learn, step-by-step sequences (Hackbarth, S. 1966).

The linear approach to learning lead to many attempts in developing a scientific approach to learning.

Self-Check Exercise– 1

1. In programmed instruction, who controls the pace of learning?
    a. The teacher
    b. The student
    c. The textbook
    d. The school administration
2. Programmed instruction is structured in a _____ format, allowing learners to progress at their own pace.
3. True or False: Programmed instruction typically involves the use of printed materials only.

12.4 Summary

In this lesson we learned about the programmed learning and computer assisted learning. Programmed instruction is an instructional method where learning content is broken down into small sections or short chunks. Here's a summary and glossary focusing on Programmed Instruction and Computer Assisted Instruction:Programmed Instruction and Computer Assisted Instruction are two related educational approaches that emerged with the advent of technology in education. Both methods aim to provide individualized, self-paced learning experiences for students.Programmed Instruction is a structured teaching method that breaks down content into small, sequential steps. It presents information, asks questions, and provides immediate feedback. This approach allows learners to progress at their own pace and master each concept before moving on to the next. Originally developed using textbooks or teaching machines, it has evolved with technology.

12.5 Glossary

Programmed Instruction: A method of presenting educational material in a carefully sequenced, step-by-step manner, allowing learners to progress at their own pace and receive immediate feedback.
Self-pacing: The ability for learners to progress through material at a speed comfortable for their individual learning needs.
Immediate feedback: The prompt response provided to learners about the correctness of their answers or the quality of their performance.
Drill-and-practice: A type of CAI that focuses on repetition of basic facts or skills to reinforce learning.
Tutorial: An instructional program that guides learners through new material, often including explanations, examples, and practice exercises.
Simulation: A computer program that models real-world situations or processes for educational purposes.
Adaptive learning: An educational method that uses computer algorithms to orchestrate the interaction with the learner and deliver customized resources and learning activities to address the unique needs of each learner.
Multimedia: The use of multiple forms of media, such as text, audio, images, animations, video, and interactive content in education.
Individualized instruction: An educational approach that tailors teaching methods, content, and pace to the needs and abilities of individual learners.

12.6 Answers to Self-Check Exercise

Self-Check Exercise–1

1. The student
2. linear or sequential
3. False

12.8 References/Suggested Readings

Agarwal, J.C. (1995) Essential of Educational Technology: Teaching Learning Innovations in Education. Delhi: Vikas Publishing House (P) Ltd.

Berge, Z. (1998). Guiding principles in Web-based instructional design. Education Media International, 35(2), 72-76..

Chauhan, S.S.: A Text-Book of Programmed Instruction, New Delhi: Sterling Publ. Co. 1978.

Collis, B. (2002). Information technologies for education and training. In Adelsberger, H., Collis, B, &Pawlowski, J. (Eds.) Handbook on Technologies for Information and Training. Berlin: Springer Verlag

Kulkarni, S.S. (1986) Introduction to Educational Technology, New Delhi: Oxford &IBH.

Kumar, K.L. (2008): Educational Technology, New Age International Pvt. Ltd. Publishers, New Delhi (Second Revised Edition).

Kumar, N. and Chandiram, J. (1967): Educational Television in India, New Delhi : Arya Book Depot.

Mehra, V. (2010): A Text Book of Educational Technology, New Delhi, Sanjay Prakashan.

Mukhopadhyay, M. (1990): Educational Technology – Challenging Issues, Sterling Publishers Pvt. Ltd., New Delhi.

Sampathet. al. (1981): Introduction to Educational Technology, Sterling Publishers Pvt. Ltd. Sharma, B.M. (1994): Media and Education, New Delhi: Commonwealth Publishers.

Venkataiah, N. (1996): Educational technology, New Delhi: APH Publishing Corporation.

12.9 Terminal Questions

- What do you understand by programmed instruction? Compare and contrast traditional classroom instruction with programmed instruction, highlighting the differences in student engagement, flexibility, and learning outcomes.Explain how programmed instruction fosters self-directed learning.

Unit - 13

Self-Instructional Programme: Computer Assisted Instructions

Lesson Structure

13.1 Introduction

13.2 Learning Objectives

13.3 Computer Assisted Instruction

Self-Check Exercise - 1

13.4 Summary

13.5 Glossary

13.6 Answers to Self-Check Exercise

13.7 References/Suggested Readings

13.8 Terminal Questions

13.1 Introduction

Here we are to talk about technology and the role it plays in 21st century education . Technology is by far the most popular topic concerning 21st century learning and education and many of the videos on Youtube are about just that. Although some of these videos cover other ideas, technology still seems to be the central focus. So the purpose of this article is two-fold: One is to address some of the misconceptions out there about technology and also is about how to implement technology effectively and use in practical pragmatic way. Any learning concerning technology should be based around the theme and objectives of the class. The place of technology in pedagogy is based on various factors and questions of effectiveness, time saving, increased outcomes etc.

13.2 Learning Objectives

After going through this lesson, you should be able to:

- Explain the computer aided instructions

13.3 Computer Assisted Instruction

The use of computers in education started in the 1960s. With the advent of convenient microcomputers in the 1970s, computer use in schools has become widespread from primary

education through the university level and even in some preschool programs. Instructional computers are basically used in one of two ways: either they provide a straightforward presentation of data or they fill a tutorial role in which the student is tested on comprehension.

If the computer has a tutorial program, the student is asked a question by the computer; the student types in an answer and then gets an immediate response to the answer. If the answer is correct, the student is routed to more challenging problems; if the answer is incorrect, various computer messages will indicate the flaw in procedure, and the program will bypass more complicated questions until the student shows mastery in that area.

There are many advantages to using computers in educational instruction. They provide one-to-one interaction with a student, as well as an instantaneous response to the answers elicited, and allow students to proceed at their own pace. Computers are particularly useful in subjects that require drill, freeing teacher time from some classroom tasks so that a teacher can devote more time to individual students. A computer programcan be used diagnostically, and, once a student's problem has been identified, it can then focus on the problem area. Finally, because of the privacy and individual attention afforded by a computer, some students are relieved of the embarrassment of giving an incorrect answer publicly or of going more slowly through lessons than other classmates.

CAL started in the 1950s and 1960s, mainly in the USA. Pioneers such as Suppes (Stanford University), Kemeny and Kurtz (BASIC, 1960s (Kemeny and Kurtz, 1968, 1985)) and Bitzer (PLATO, University of Illinois (Hart, 1981, 1995)) were among the first to use a computer as part of the learning process. The early CAI programs were rudimentary by today's standards, with mainly text-based interfaces. Bitzer was one of the first to realise the importance of graphics and sound in the teaching process. Initially, CAI programs simply tried to teach a particular topic without a basis on any particular educational philosophy. The TICCIT (Time-Shared Interactive Computer Controlled Information Television - (Merrill, 1983; 1988)) at the Brigham Young University was based on a specific instructional framework that dictated the actual hardware. The Logo project (Papert, 1980; 1993) was probably the first CAL system that was based on a specific learning approach (the experimental, discovery learning approach). More detail on the history of CALL is given in History (2000) and Levy (1997). 2.2.3 Benefits of CAI CAI brings with it several potential benefits as a teaching/learning medium. These include self-paced learning, self-directed learning, the exercising of various senses and the ability to represent content in a variety of media.1 As these topics will be explored in greater detail throughout this document, only a brief overview will be given here. Although CAI has not been studied in the EL community situation, many of the benefits in the general CAI context should also be available in the EL one. With self-paced learning, learners can move as slowly or as quickly as they like through a program. If they want to repeat some task or review some material again, they can do so as many times as they choose. The program will not tire or complain about repetitions. Learners can skip over a topic if information is already known, making the learning process more efficient. With self-directed learning, learners can decide what they want to learn and in what order. As will be shown later in this chapter, learners have different learning styles and use different learning strategies. Various studies (Entwistle, 1981; Schmeck 1988; Ford and Chen, 2001) have shown that when learners can learn in a way that suits them, improvements in the effectiveness of the learning process normally ensue. Humans are multi-sensory animals. The more senses through which we receive information, the easier it is to remember. According to Fletcher (1990), people remember 20% of what they hear, 40% of what they see and hear and 75% of what they see, hear and do. The fact that the computer can exercise various senses and present information in a variety of media can enhance the learning process.

Types of CAI CAI systems fall into two basic types: tutor or tool (Levy, 1997), although the term CAI often refers to computer tutors. In the tutor classification, the computer has the information to be learnt and controls the learning environment. A CAI tool enhances the teaching process, usually by focusing on one particular learning task and aiming to improve it. Within the tutor classification, there are four modes: drill and practice, tutorials, simulations and games (Gloor, 1990). Drill and practice (also known as “Drill and Kill”) is suited to the behaviourist model, with repeated practice on lower-level cognitive skills. Although often frowned upon, it can be useful in certain contexts. The tutorial mode is probably one of the most common ones within CAI. In this mode, the computer presents the information, guides the learner through the system, allows the learner to practise and then assesses the learner. In simulation mode, the learner works with a simulation of the real world. Simulation is used where it is not practical or feasible to provide the learning in “real-life” (for example, pilot training). In games mode, there is generally a competitive element (e.g. time constraints or a race). The idea is to reinforce knowledge that the learner is assumed to have. While it is often more difficult to develop CAI programs in the simulation and games modes, learners tend to find them entertaining and challenging.

A. Advantages of the CAI are given below:

1. CAI is individualized, that is each student is free to work at his own place, totally unaffected by the performance of any other students.

2. Information is presented in a structured form. It proves useful in the study of a subject where there is hierarchy of facts and rules.

3. CAI forces active participation on the part of the student, which contrasts with the more passive role in reading a book or attending a lecture.

4. CAI utilizes a reporting system that provides the student with a clear picture of his progress. Thus students can identify the subject areas in which they have improved and in which they need improvement.

5. By enabling students to manipulate concepts directly and explore the results of such manipulation, it reduces the time taken to comprehend difficult concepts.

6. CAI offers a wide range of experiences that are otherwise not available to the student. It works as multimedia providing audio as well as visual inputs. It enables the student to understand concepts clearly with the use of stimulating techniques such as animation, blinking, graphical displays etc.

7. CAI provides a lot of drilling which can prove useful for low aptitude students and through which high-aptitude students can be escaped.

8. CAI can enhance reasoning and decision-making abilities.

Limitations of CAI: Though CAI has a number of advantages, it has some limitations also. Some of these are as follows:

1. A CAI package may be regarded simply as a novelty, rather than an integral part of the educational process. It may threaten the objectives of the package.

2. Though simulation permits execution of chemical and biological experiments, hands-on experience is missing. Moreover, CAl packages cannot develop manual skills such as handling an apparatus, working with a machine etc.

3. There are real costs associated with the development of Cal systems. It is expensive in terms of staff time to devise and programme effective Cal .

4.Content covered by a certain CAl package may become outdated. A very high cost is involved in the development of these packages. If the course is outdated, the resources involved in its development will be a waste.

B. Disadvantages of CAI Approach:

1. CAI packages may not fulfill expectations of teachers. Learning Objectives and methods decided by the CAI author and of a teacher may differ.

2. Motivating and training teachers to make use of computers in education is a challenging task. They may have fear of this new device. They may be unwilling to spend extra time for preparation, selection and use of CAL packages. It may also be perceived as a threat to their job.

3. There are administrative problems associated with computer installation. The problems particularly related to the physical location of the computer resources, the cost of hardware maintenance and insurance and time-tabling.

4. The rapid development of hardware makes it difficult to select a system before it becomes obsolete. If a new system is installed by a maximum number of institutions, they may not get courseware required for the system and courseware developed so far may become useless.

Self-Check Exercise–1

1. does Computer Assisted Instruction primarily involve?
   a. Manual note-taking
   b. Traditional textbooks
   c. Use of computers for learning
   d. Outdoor activities

2. Assisted Instruction utilizes technology to facilitate and enhance _____.
3. True or False: Computer Assisted Instruction is limited to basic subjects and cannot be applied to complex topics.

13.4 Summary

In this lesson we learned about Computer Assisted Instruction (CAI) is an extension of Programmed Instruction that utilizes computers and software to deliver educational content. CAI can include various formats such as tutorials, drill-and-practice exercises, simulations, and educational games. It often incorporates multimedia elements like text, graphics, audio, and video to enhance the learning experience. As technology continues to advance, these instructional methods are evolving, incorporating artificial intelligence, adaptive learning systems, and more sophisticated interactive elements to create more personalized and engaging learning experiences.

13.5 Glossary

Computer Assisted Instruction (CAI): An instructional method that uses computers and educational software to provide interactive, self-paced learning experiences.
Self-pacing: The ability for learners to progress through material at a speed comfortable for their individual learning needs.
Immediate feedback: The prompt response provided to learners about the correctness of their answers or the quality of their performance.
Drill-and-practice: A type of CAI that focuses on repetition of basic facts or skills to reinforce learning.
Tutorial: An instructional program that guides learners through new material, often including explanations, examples, and practice exercises.
Simulation: A computer program that models real-world situations or processes for educational purposes.
Adaptive learning: An educational method that uses computer algorithms to orchestrate the interaction with the learner and deliver customized resources and learning activities to address the unique needs of each learner.
Multimedia: The use of multiple forms of media, such as text, audio, images, animations, video, and interactive content in education.
Individualized instruction: An educational approach that tailors teaching methods, content, and pace to the needs and abilities of individual learners.

13.6 Answers to Self-Check Exercise–1

1. Use of computers for learning
2. the learning process
3. False

13.7 References/Suggested Readings

Agarwal, J.C. (1995) Essential of Educational Technology: Teaching Learning Innovations in Education. Delhi: Vikas Publishing House (P) Ltd.

Berge, Z. (1998). Guiding principles in Web-based instructional design. Education Media International, 35(2), 72-76..

Chauhan, S.S.: A Text-Book of Programmed Instruction, New Delhi: Sterling Publ. Co. 1978.

Collis, B. (2002). Information technologies for education and training. In Adelsberger, H., Collis, B, &Pawlowski, J. (Eds.) Handbook on Technologies for Information and Training. Berlin: Springer Verlag

Kulkarni, S.S. (1986) Introduction to Educational Technology, New Delhi: Oxford &IBH.

Kumar, K.L. (2008): Educational Technology, New Age International Pvt. Ltd. Publishers, New Delhi (Second Revised Edition).

Kumar, N. and Chandiram, J. (1967): Educational Television in India, New Delhi : Arya Book Depot.

Mehra, V. (2010): A Text Book of Educational Technology, New Delhi, Sanjay Prakashan.

Mukhopadhyay, M. (1990): Educational Technology – Challenging Issues, Sterling Publishers Pvt. Ltd., New Delhi.

Sampathet. al. (1981): Introduction to Educational Technology, Sterling Publishers Pvt. Ltd. Sharma, B.M. (1994): Media and Education, New Delhi: Commonwealth Publishers.

Venkataiah, N. (1996): Educational technology, New Delhi: APH Publishing Corporation.

13.8 Terminal Questions

- Discuss the impact of Computer Assisted Instruction on student engagement and learning outcomes, citing specific examples.List down the advantage and disadvantage of CAI?Provide an example of Computer Assisted Instruction software.

Unit - 14

Language Laboratory

Lesson Structure

14.1 Introduction

14.2 Learning Objectives

14.3 Language laboratory

Self-Check Exercise - 1

14.4 Summary

14.5 Glossary

14.6 Answers to Self-Check Exercise

14.7 References/Suggested Readings

14.8 Terminal Questions

14.1 Introduction

Good communication skills are indispensable for the success of any professional. If one wants to reach out to people, he or she has to speak their language. The English language, in particular, has become essential in the lives of young people who aspire to advance their careers anywhere in the world. English language learning has therefore become a must for any Indian student today.

Language learning is not the same as learning any other subject. It is not confined to writing an examination and getting a degree or award. The four skills of reading, writing, listening and speaking have to be practiced. Being able to communicate well is the most important factor when seeking a placement in a company or institution. Communication involves one's ability to listen carefully so as to grasp the meaning and to respond in turn with apt words and clarity of pronunciation.

The language laboratory plays an important role in the language learning process. This article discusses the various features of the language laboratory. As it is a technological aid for learning, it has a number of advanced facilities that can help a student to learn a language with proficiency to communicate. It has become inevitable in today's context but, at the same time, it

poses certain challenges. This article attempts to highlight the significance of the language laboratory and its challenges imposed on the learner and the teacher.

14.2 Learning Objectives

After going through this lesson, you should be able to:

- List down the use of language laboratory in teaching learning process

14.3 Language laboratory

A classroom in which students learning a foreign language can practice sound and word patterns individually or under supervision with the aid of audio equipment, etc.is called language laboratory. In other words a room designed for learning foreign languages, having audio equipment that allows students to listen and respond to recorded lessons and spoken examples while an instructor monitors their progress.

The Language Labs are becoming items better and better valued within educational institutions since the functions and possibilities they offer are much higher than the ones in the traditional teaching-learning system

Moreover it is necessary to distinguish between language laboratory, language method and control software. A method in a procedural that guides teachers when, in turn, control software is a computer program that is used to control students' computers and to know what they are doing at all times. Instead, a language lab goes beyond, a language lab can integrate the method we want to use allowing further development of a large number of different activities in the classroom, the communication between teachers and students, using multimedia material, etc. taking into account at the same time the functions of control software.

Language immersion, attention to diversity, teamwork promotion, etc. are just some of the outstanding features of the language laboratories. According Juana Gil Fernandez (Head of the Laboratory of Phonetics. Council for Scientific Research) a language lab *"allows the teacher, if desired, to transcend everyday teaching of a language to enter fully in the investigation of cognitive process of acquiring and learning foreign languages in general [...]".*

Modern language labs are known by many names, digital language lab, multimedia language lab, language media center and multimedia learning center to name but a few. View the video and read the text below to learn more.

language labs in general offer the following

- Text, images, audio and video can easily be integrated; teachers can alter materials to fit their requirements
- Learners can record their own voice and play back the recordings, interact with each other and the teacher, and store results
- Teachers can intervene and control the learners' computers via the teacher's console, track of learners' work, etc.

- Self-access for independent learning which includes access to resources outside class

The purpose of a language lab is to involve students to actively participate in language learning exercises and get more practice than otherwise possible in a traditional classroom environment.

Common components in a modern language lab:

- Teacher has a computer with appropriate software for conducting language exercises
- Teacher and students wear headsets that block outside sounds and disturbances
- Students have a media player/recorder for listening to audio and recording speech
- Teacher and student positions are connected via LAN (local area network), in some cases also via separate audio cabling
- A server computer or a separate storage device is often used to store lesson materials in a digital format

Why use a language lab in language teaching?

In an average foreign-language class, all students combined speak only 23,5% of the class time (DESI 2006, pg. 48-49).

In a 45-minute long class 23,5% equals approximately 10 ½ minutes. As this number is the speaking time of all students put together, the time each student gets to practice speaking becomes less as class size is increased.

The Need for a Language Laboratory

It is required of any learner to have a good command of the language for communication purposes, with clarity and accuracy being vital for effective and efficient communication. What helps one to acquire such proficiency in a language is the process and the method of learning that language.

The curriculum of the present educational system in India does not have a laboratory session for arts subjects. Only those who study science subjects have practical work, which is undertaken in a laboratory. Hence, a laboratory for language learning is something new to Indian students, whereas it is very common in Western countries to train children in the laboratory to enrich their language learning experiences.

Scientific advancements have produced a number of innovative products to assist the learning process. Innovative products such as digital multimedia control, wireless headsets and microphones, the interactive response pad, etc. are very useful for students learning languages for communication. These interactive tools are designed to enhance not only language teaching but also class room grading and distance learning.

The language laboratory is very useful for assessing students' speech. It provides students with the technical tools to get the best samples of pronunciation of the language. The electronic devices used in the laboratory will stimulate the eyes and ears of the learner to acquire the language quickly and easily. The laboratory's collection is designed to assist learners in the acquisition and maintenance of aural comprehension, oral and written proficiency, and cultural awareness. The language laboratory offers broadcasting, television programmes, web-assisted materials and videotaped off-air recordings in the target language. In short, a learner can get the experience of having interaction with native speakers through the laboratory. Hence, the language laboratory has become the need of the hour in any language learning process for communication.

Kinds of Language Laboratory

The language laboratory assists educators in delivering foreign language instruction, and has been through many developmental stages over the years.

Four kinds of laboratories are being focused on here:

Conventional Laboratory

This is the primitive form of the language laboratory. The conventional lab has a tape recorder and a few audiocassettes of the target language to teach the learners. The teacher plays the tape and the learners listen to it and learn the pronunciation. As it is used in a normal classroom setup, it is prone to distractions and this type of laboratory is no longer common.

Lingua Phone Laboratory

This is again a conventional type of lab, with a little modernization. Learners are given a headset to listen to the audiocassettes being played. Here distractions are minimized and a certain amount of clarity in listening is possible.

There is also a modernized lingua phone laboratory available today, which uses an electronic device that has two functions. It works as a cassette player with all the features of a normal cassette player on the left side, and as a repeater on the right side that helps one to record one's voice and play it back for comparison.

Computer Assisted Language Laboratory (CALL)

CALL uses the computer to teach language. The language course materials are already fed into the computer and are displayed according to the features available in the system. Nowadays, there are also laboratories with computers with a connection to the Internet. These are called **Web Assisted Language Laboratories** (**WALL**). The development of CALL has been gradual, and this development has been categorized into three distinct phases: Behavioristic CALL, Communicative CALL and Integrative CALL (Barson&Debski, 1996). Though the development of CALL has been gradual, its acceptance has come slowly and unevenly.

The Significance and Relevance of the Language Laboratory

The significance of the language laboratory has been much felt in the domain of communication. We live in a multilingual and multicultural world, which is being shrunk to the size of a village by the advancement of science and technology. The language laboratory exists to help one to use technology effectively to communicate. It is not merely for learning a single language, but can be

used for teaching a number of languages efficiently. To acquire a sensibility for the sounds and rhythm of a language, one has to hear the best samples of a spoken language (Richards, 2001). This is precisely the function of the language laboratory. Some highlights of the language laboratory are given below:

1. It is a tool designed for teaching any language.

2. It helps one to learn pronunciation, accent, stress and all other aspects of the phonetics of a language.

3. Effective communicative training programmes for the general public, private and corporate sectors, junior and senior level officers can be given through the lab.

4. Web-content creation, the setting up of in-house news magazines, corporate publicity and identity, and teaching materials can be generated through the language laboratory.

5. General documentation, software documentation and all forms of technical documentation can be done.

6. Experts can utilize the laboratory for creating and editing scientific and technical materials for teaching language.

7. The language laboratory enables one to conduct courses for various groups of people like students, faculties, businesspeople, etc.

8. Short-term and long-term coaching classes for international examinations like IELTS, TOEFL and other competitive examinations can be organized.

9. Online courses and paperless examinations can be conducted through the language laboratory.

As the ability to communicate effectively has become the prerequisite for anyone who ventures into a new profession, the need for developing such a skill is a much-felt phenomenon today. Both governmental and private institutions focus their attention on students developing their communicative skills. As technology has entered into every aspect of human life, it has extended its advanced products into the field of communication. So everyone strives to get the best on the market.

It is a fact that most students who do not find a placement after completion of their technical studies are very much dependent on their ability to express themselves and their knowledge efficiently. While emphasizing the importance of employment-oriented education, Dr. Thiruvasagam, the Vice-Chancellor of Bharathiar University, Coimbatore, explained that “personality development and communication skills are equally important for students in finding respectable jobs in addition to their academic records” (The Hindu, 25/09/06). He also urged all the principals of affiliated colleges to have a language laboratory on the campus and to motivate management to appoint a trained instructor specifically for the laboratories.

The Anna University in Chennai has circulated a note to all its affiliated colleges to set up language laboratories on their premises to enable students to develop their communicative skills. The vice-chancellor of Bharathiar University has requested the board of studies for English to reduce the conventional teaching of English prose and poetry, and has allocated 50% of the teaching time

for communicative English (The Hindu, 11/09/06). Almost all technical colleges in the Coimbatore region have already opened language laboratories. Though the cost of the installation of a language laboratory is very high, institutions have invested in them for their students' benefit

Self-Check Exercise– 1

1. What is the primary purpose of a language laboratory?
    a. Conducting experiments in linguistics
    b. Providing a space for language immersion
    c. Facilitating language learning through audio and visual aids
    d. Training language teachers
2. In a language laboratory, students utilize _____ to enhance their language skills.

14.4 Summary

The language laboratory is a very helpful tool for practicing and assessing one's speech in any language. It provides a facility which allows the student to listen to model pronunciation, repeat and record the same, listen to their performance and compare with the model, and do self-assessment. Since the language laboratory gives every learner of any language freedom to learn at their own pace, it is flexible and does not necessarily require a teacher all the time. At the same time, it is possible for teachers to provide assistance individually and collectively. The language laboratory allows every participant his or her privacy to speak and listen.A language laboratory is a specialized facility designed to enhance language learning through technology. It typically consists of audio or audio-visual equipment that allows students to listen to model pronunciation, record their own speech, and engage in interactive language exercises.Languagelaboratories provide a controlled environment for individualized practice, allowing students to work at their own pace and focus on areas where they need the most improvement. They also offer opportunities for self-assessment and can reduce anxiety associated with speaking a foreign language in front of others.Modern language labs have evolved with technology, often incorporating computer-based or web-based systems that offer more interactive and multimedia-rich experiences. These may include virtual reality environments, chat functions for language exchange, and adaptive learning technologies that tailor exercises to individual student needs.

While language laboratories are powerful tools, they are most effective when integrated into a comprehensive language learning program that includes classroom instruction, conversation practice, and real-world language use.

14.5 Glossary

Language Laboratory: A facility equipped with audio or audio-visual devices used for language learning and teaching.
Linguistic Skills: The various components of language proficiency, including listening, speaking, reading, and writing.
Audio-lingual Method: A language teaching approach that emphasizes listening and speaking skills through repetition and drills, often used in language labs.
Pronunciation Drill: An exercise focusing on the correct articulation of sounds in a language.
Intonation: The rise and fall of voice pitch in speech, which can convey meaning in many languages.
Interactive Exercise: A language learning activity that requires active participation from the learner, often with immediate feedback.

Playback: The ability to listen to a recording of one's own speech for self-evaluation and improvement.
CALL (Computer-Assisted Language Learning): The use of computers and software in language teaching and learning, often integrated into modern language labs.
Immersion: A method of language learning that involves surrounding the learner with the target language, which can be simulated in advanced language labs.
Fluency: The ability to speak a language smoothly, easily, and readily, often practiced in language lab settings.

14.6 Answers to Self-Check Exercise

1. Facilitating language learning through audio and visual aids
2. audio recordings, interactive software, and other multimedia resources

14.7 References/Suggested Readings

Barson, J. &Debski, R. (1996), *Calling Back CALL*. Honolulu: University of Hawaii.

Richards, J. (2001), *Approaches and Methods in Language Teaching*. Cambridge: CUP.

"Bharathiar University Plans Syllabus Revision", *The Hindu*. Coimbatore: p.4., 11/9/06.

"Colleges should have Language Laboratory on Campus", *The Hindu*. Coimbatore: p.4., 25/9/06.

14.8 Terminal Questions

- Discuss the evolution of language laboratories and their role in modern language education, highlighting the advantages they offer over traditional classroom instruction methods.Explain the role of language laboratories in improving pronunciation skills.

****

Unit - 15

Language Laboratory uses in Development of Linguistic Skills

Lesson Structure

15.1 Introduction

15.2 Learning Objectives

15.3 Use of language laboratory in linguistic skill

Self-Check Exercise - 1

15.4 Summary

15.5. Glossary

15.6 Answers to Self-Check Exercise

15.7 References/Suggested Readings

15.8 Terminal Questions

15.1 Introduction

Good communication skills are indispensable for the success of any professional. If one wants to reach out to people, he or she has to speak their language. The English language, in particular, has become essential in the lives of young people who aspire to advance their careers anywhere in the world. English language learning has therefore become a must for any Indian student today.

Language learning is not the same as learning any other subject. It is not confined to writing an examination and getting a degree or award. The four skills of reading, writing, listening and speaking have to be practiced. Being able to communicate well is the most important factor when seeking a placement in a company or institution. Communication involves one's ability to listen carefully so as to grasp the meaning and to respond in turn with apt words and clarity of pronunciation.

The language laboratory plays an important role in the language learning process. This article discusses the various features of the language laboratory. As it is a technological aid for learning, it has a number of advanced facilities that can help a student to learn a language with

proficiency to communicate. It has become inevitable in today's context but, at the same time, it poses certain challenges. This article attempts to highlight the significance of the language laboratory and its challenges imposed on the learner and the teacher.

15.2 Learning Objectives

After going through this lesson, you should be able to:

- List down the use of language laboratory in teaching learning process

15.3 Use of language laboratory in linguistic skill

Linguistic skills measure the capacity of individuals to understand and express themselves, both in written and oral form. There are many generations in Galicia that finished school before Galician was established as a compulsory subject and they therefore did not receive standardized classes in Galician. We can thus think that the general linguistic skills of the population are deficient, especially with regard to writing. The fact is that linguistic skills are generally good in Galicia and their further development will only improve things.

In any profession, possessing good communication skills is deemed advantageous as it helps in reaching out to most people successfully. With globalization this possession of good communication skills translates into excellent communication skills in the English Language. In a country like India, it has become essential to be able to communicate in English if one wants to further his/her career. As a result there are various courses for gaining command over the English language and nearly all these courses draw attention to providing a language laboratory to build skills in the English language.

This paper looks at teaching of communication skills at the undergraduate level in government aided colleges with a special focus on the language laboratory. Generally laboratories were used in India for the science subjects. With technological advancement and exposure to western models of teaching and learning, there has been a spurt in the growth of language laboratories in colleges. This paper will look at the following: what is a language laboratory? What kinds of language laboratories are available to a language teacher? What are their advantages and disadvantages? Is a language laboratory essential for language teaching and learning? The paper also studies on the changing destinies of language laboratories with the swing in language acquisition methods. The paper also looks at the feasibility of language labs in a country like India and tries to critically study whether its advantageous to set up language laboratories or not.

The **language laboratory** is an audio or audio-visual installation used as an aid in modern language teaching. They can be found, amongst other places, in schools, universities and academies. Perhaps the first lab was at the University of Grenoble. (Ruby,W.B. 2004) In the 1950s up until the 1990s, they were tape based systems using reel to reel or (latterly) cassette. Current installations are generally multimedia PCs. The original language labs are now very outdated. They allowed a teacher to listen to and manage student audio via a hard-wired analogue tape deck based systems with 'sound booths' in fixed locations.

The Lingua Phone Laboratory is again a conventional type of lab, with a little modernization. Learners are given a headset to listen to the audiocassettes being played. Here distractions are minimized and. There is also a modernized lingua phone laboratory available

today, which uses an electronic device that works as a cassette player with all the features of a normal cassette player on the left side, and as a repeater on the right side that helps one to record one's voice and replay it for comparison.

Role of language laboratory in linguistic skill

Among the four macro skills of language learning, listening and reading are receptive skills whereas speaking and writing are the productive skills. These skills can be improved effectively, when the learner learns at his own pace. With the help of the functional tool- Language Lab with Teacher's Console, language skills can be learnt, practiced and evaluated through the techniques followed.

I) Techniques to improve listening

The primary form of linguistic communication is speech and so listening is the most important receptive (and learning) skill for foreign language students. An ability to listen and interpret many shades of meaning from what is heard, is a fundamental communicative ability.

Teaching listening involves training in some 'enabling skills' — perception of sounds, stress, intonation patterns, accents, attitudes and so on, as well as 'practice' in various styles of listening comprehension.

a) Perception / Pronunciation

Accurate perception of the sounds of the language is the first stage which leads to interpretation and comprehension. When listening to a foreign language, we need to know the sounds, rhythms, tunes and stress patterns of that language. All the pronunciation work which we do will benefit the students' listening ability.

1) Phonetics: The sounds of the English language can be written down using the International Phonetic Alphabet (IPA) which is used in all Longman dictionaries. Use of minimal pair perception exercises (ship/sheep, ten /then) helps students learn the sounds of English. It can be well practiced on pronunciation exercises with the help of software or by using CDs in language lab.

2) Interpretation: We listen to interpret meaning. Most of the exercises which students will do focus on listening comprehension, which is, interpreting meaning from spoken language.

3) Listening to words: In written language, there are convenient white spaces between words. Whereas spoken language is a continuous stream of sound. The learner has to pay attention to understand the meaning of words spoken.

b) Tools for Listening

1) Acoustics: Our ability to hear is essential to our ability to listen. The first set of ideas concerns the production, corruption, transmission and reception of spoken language.

2) Usage of language laboratory: Earphones and headphones deliver undistorted sound directly to the ears. It is better practiced in a language laboratory with the help of head phones and earphones; this provides ideal conditions for intensive listening.

c) Organizing listening comprehension activities

As in reading comprehension, there should always be a 'purpose' in listening. In most cases, this will be some form of comprehension. We should establish regular 'procedures' for listening activities in which students will develop from general (gist) to specific comprehension through repeated listening and a specific activity at each stage.

1) Understanding the setting: After the first listening, students should be able to understand the setting of the recording — where the speakers are from, how many speakers there are, the ages, roles, professions, moods of the speakers, etc., and what they are talking about. This encourages students to think about the setting so that they can go on to speculate about the content of what the speakers will say. This first listening allows the students to get accustomed to the voices.

2) Pre-teach difficult vocabulary: Teaching isolated and meaningless lists of words and phrases is probably not a good idea. Teachers may choose to introduce the setting before the students listen. This provides an opportunity to elicit or introduce and explain the sort of language we might hear in that setting. This language is listed on the board and students listen and mark what they actually heard.

3) Focused listening: Listening tasks should give the students a reason for listening and focus their attention. These listening tasks should be set before the students listen. This intense listening requires intense concentration. Therefore the listening task can be limited for ten to fifteen minutes.

4) Comprehending: In large classes we will probably have different levels of competence. There is no reason why all the students need to work on the same task. Equally, if we have more than 6 questions, groups of students can be given questions 1-5, questions 6-10 and so on. After listening students share their answers.

5) Analysis: After students have understood the gist and some important details of a recording, it can be analyzed in more detail and investigate the way in which the speakers have expressed the ideas. How much have they revealed their mood, their opinions and so on? Analysis of the speed and style of speech, the use of hesitation, repetition, false starts, paraphrasing and so on can also be practiced.

6) Graded Listening tasks: We teach listening by building up comprehension from general understanding to identifying specific information. We can also grade the listening tasks from easy to more difficult by the form of questions we use and it can be evaluated based on the kind of out put by the learners in the form of writing or speaking.

II) Techniques to improve speaking

Students' speech evaluation is possible through the digital recorder modules in language learning software. Students' audio recordings can be scored or saved for later evaluation. The Teachers can Record their own voice notes that students can hear later as they review their work.

Group Discussions & Role Plays: The students on different workstations can be grouped and put into random pairs or groups to participate in role plays and group discussions. Teachers can listen directly or intervene as when required to control, monitor and evaluate the process. It can also be recorded and saved for later evaluation.

Digital Recorder: This software module allows students to experience interactive multimedia programs while simultaneously recording their own voices for practice. Using this, students feel

like they are interacting with a live native speaker and they can increase their comprehension, vocabulary and speaking skills. By adding subtitles, reading skills are also increased. Quizzes and tests can be prepared by using text, graphics, video and audio materials. These quizzes are graded automatically

Voice Recognition Technology: This technology is integrated into the Pronunciation module of the software. Using the built in microphone on your computer, the learner will be able to repeat words after they hear from a native speaker through computer speakers. The software will analyze their pronunciation and compare a waveform representation of the native speaker's pronunciation with a waveform of their pronunciation. An accuracy scale on the screen with display their voice match to the native speaker on a scale of "Bad", "Acceptable", and "Good".

III) Techniques to improve Reading & Writing

The key to learning a language is the frequent exposure and use of vocabulary and grammar. The average person must be exposed to a word or phrase 100s of times before integrating it into fluent conversation. The major thresholds of gaining language fluency are the learner's ability to:

- Learn a base vocabulary of approximately 2000 words for day–to–day use
- Learn the rules of grammar
- Vocabulary Lessons
- Grammar Exercises
- Interactive Stories/situations

a) Grammar Exercises – Reading, Writing, Comprehension

The goal of these exercises is to build the knowledge of how the words fit together to make sense. Some of the exercises may be translations; others can be designed to teach the learner to think in English by asking them to change a phrase in a specific way. This feature requires to type responses within the exercises, providing a practical and effective form of writing instruction.

Reading Comprehensions can be given in the form of stories, case lets, cases, descriptions and narrations. The learners can be encouraged by allowing them to follow the different methods of reading such as, **skimming and scanning.** They can be followed by activities in groups through exercises on word meanings, vocabulary, fill in the missing information, writing summary / **gist**. **Note taking, thought provoking questions for group discussions, brainstorming sessions** etc.

b) Writing exercises: Writing can be practiced through typing on gap fill exercises and model format for **E-mail, letter, memo, reports and resume.** They can also prepare the **paper for presentations**. These can be observed and edited by the instructor through the Teacher's Console.

Written Assistance: - The teacher can send messages to guide learners with their work and learner can reply. The teacher can also initiate a text chat session with single & multiple learners. In this feed back can be given on the spot.

Track learning progress through Language Learning Software

Language learning software provides teachers with a number of methods for evaluating students' performance and tracking their progress. By using writing, listening, recorded and Web-based activities to stimulate learners to make use of their growing oral and written language skills, store results for comparison over time, so the teacher/learner can measure progress.

Self-Check Exercise– 1

1. True or False: Language laboratories are primarily used for individual study, with little to no interaction among students.
2. Which linguistic skill is most effectively practiced in a language laboratory?
    a. Reading
    b. Writing
    c. Listening
    d. Speaking

3. Language laboratories help students develop their _____ skills through interactive exercises and simulations.
4. The use of language laboratories is limited to beginner-level language learners.

15.4 Summary

The language laboratory is a very helpful tool for practicing and assessing one's speech in any language. It provides a facility which allows the student to listen to model pronunciation, repeat and record the same, listen to their performance and compare with the model, and do self-assessment. Since the language laboratory gives every learner of any language freedom to learn at their own pace, it is flexible and does not necessarily require a teacher all the time. At the same time, it is possible for teachers to provide assistance individually and collectively. The language laboratory allows every participant his or her privacy to speak and listen.A language laboratory is a specialized facility designed to enhance language learning through technology. It typically consists of audio or audio-visual equipment that allows students to listen to model pronunciation, record their own speech, and engage in interactive language exercises.Languagelaboratories provide a controlled environment for individualized practice, allowing students to work at their own pace and focus on areas where they need the most improvement. They also offer opportunities for self-assessment and can reduce anxiety associated with speaking a foreign language in front of others.Modern language labs have evolved with technology, often incorporating computer-based or web-based systems that offer more interactive and multimedia-rich experiences. These may include virtual reality environments, chat functions for language exchange, and adaptive learning technologies that tailor exercises to individual student needs.

While language laboratories are powerful tools, they are most effective when integrated into a comprehensive language learning program that includes classroom instruction, conversation practice, and real-world language use.

15.5 Glossary

Language Laboratory: A facility equipped with audio or audio-visual devices used for language learning and teaching.
Linguistic Skills: The various components of language proficiency, including listening, speaking, reading, and writing.

Audio-lingual Method: A language teaching approach that emphasizes listening and speaking skills through repetition and drills, often used in language labs.
Pronunciation Drill: An exercise focusing on the correct articulation of sounds in a language.
Intonation: The rise and fall of voice pitch in speech, which can convey meaning in many languages.
Interactive Exercise: A language learning activity that requires active participation from the learner, often with immediate feedback.
Playback: The ability to listen to a recording of one's own speech for self-evaluation and improvement.
CALL (Computer-Assisted Language Learning): The use of computers and software in language teaching and learning, often integrated into modern language labs.
Immersion: A method of language learning that involves surrounding the learner with the target language, which can be simulated in advanced language labs.
Fluency: The ability to speak a language smoothly, easily, and readily, often practiced in language lab settings.

15.6 Answers to Self-Check Exercise

1 False
2 Speaking
3 speaking, listening, reading, and writing
4 False

15.7 References/Suggested Readings

Barson, J. &Debski, R. (1996), *Calling Back CALL*. Honolulu: University of Hawaii.

Richards, J. (2001), *Approaches and Methods in Language Teaching*. Cambridge: CUP.

"Bharathiar University Plans Syllabus Revision", *The Hindu*. Coimbatore: p.4., 11/9/06.

"Colleges should have Language Laboratory on Campus", *The Hindu*. Coimbatore: p.4., 25/9/06.

15.8 Terminal Questions

- Explain your views to improve the functions of language laboratory in learning process.Discuss the benefits of using language laboratories for advanced language learners, exploring how they can be tailored to address specific linguistic challenges and enhance proficiency in all language skills.

****

Unit - 16

Micro -Teaching: Meaning, Procedure

Lesson Structure

16.1 Introduction
16.2 Objectives
16.3 Meaning of micro teaching
16.4 Procedure of micro teaching
Self-Check Exercise - 1
16.5 Summary
16.6 Glossary
16.7 Answers to Self-Check Exercise
16.8 References/Suggested Readings
16.9 Terminal Questions

16.1Introduction

Microteaching, a teacher training technique currently practiced worldwide, provides teachers an opportunity to perk up their teaching skills by improving the various simple tasks called teaching skills. With the proven success among the novice and seniors, microteaching helps to promote real-time teaching experiences. The core skills of microteaching such as presentation and reinforcement skills help the novice teachers to learn the art of teaching at ease and to the maximum extent. The impact of this technique has been widely seen in various forms of education such as health sciences, life sciences, and other areas. The emerging changes in medical curricula by the Medical Council of India and the role of medical teachers envisage the need of this special training of teachers and monitoring of their skills for their continued efficient performance at any age. The alleged limitations of microteaching can be minimized by implementing this at the departmental level in several sequences. The author made literature search of research and review articles in various educational databases, journals, and books. From the reference list of published articles, books were also reviewed. This paper presents an outline of the various phases of microteaching, core teaching skills, implementation aspects, and the impact of microteaching on medical education.

16.2 Learning Objectives

After going through this lesson, you should be able to:

- Explain the micro teaching
- Discuss the main components of micro teaching

16.3 of micro teaching

Microteaching is a teacher training technique for learning teaching skills. It employs real teaching situation for developing skills and helps to get deeper knowledge regarding the art of teaching. This Stanford technique involved the steps of "*plan, teach, observe, re-plan, re-teach and re-observe*" and has evolved as the core component in 91% of on-campus clinical teaching development programs, with the significant reduction in the teaching complexities with respect to number of students in a class, scope of content, and timeframe, etc. Most of the pre-service

teacher education programs widely use microteaching, and it is a proven method to attain gross improvement in the instructional experiences. Effective student teaching should be the prime quality of a teacher. As an innovative method of equipping teachers to be effective, skills and practices of microteaching have been implemented.

Microteaching can be practiced with a very small lesson or a single concept and a less number of students. It scales down the complexities of real teaching, as immediate feedback can be sought after each practice session. The modern-day multimedia equipment such as audio–video recording devices have a key role in the learning process.

Observing a fellow teacher and using a trial-and-error in own teaching sessions are very common way of self-training. But, both of them have their own demerits. On the other hand, microteaching helps in eliminating errors and builds stronger teaching skills for the beginners and senior teachers. Microteaching increases the self-confidence, improves the in-class teaching performances, and develops the classroom management skills

A. Learning Objectives of Micro Teaching

- Micro teaching is a very constructive method used in enhancing the teaching skills of a teacher and to some extent the pupils as well. The agenda of micro teaching can be better understood from below mentioned points.
- It concentrates on specific teaching behaviors and provides opportunities for practicing teaching under controlled conditions.
- Through micro-teaching the behavior of the teacher as well as the pupil is modified and the teaching-learning process becomes more effective through skill training.
- To make the teacher ready to take up real-time classes with confidence.
- It helps in developing the knowledge, skills, and capabilities of the teachers.
- Through this teachers get immediate feedback on their performances which can be worked upon for further improvements.
- As this is a sort of test for the teachers it will not put students at risk if the teacher fails to perform well.

B. Features Of Microteaching

There are the following features of Microteaching:

a) **Micro-Element**

- The concept of Microteaching is clear: it helps reduce the complexities of teaching and makes it easier for teachers. The complexities arrive in times of teaching, during the lesson, and the subject matter and they can be overcome by concentrating on the training process.
- Teachers can get training in specifically one skill as well. Before attempting the performance of complicated tasks, teachers should master the task's components.
- Teaching Skills and Teaching Strategies
- There are many skills decided by researchers which represent the tasks, procedures and strategies of teaching many subjects at different levels. These skills may be classified as:

b) **Pre-Instructional Skill:** consists of writing instructional objectives, sequencing and organizing knowledge for achieving specific appropriate content, goals, proper organization, selection of proper audio-visual aids and others.

c) **Instructional skills:** Consist of probing questions, reinforcing pupil participation, introducing a lesson, skills explaining and illustrating, reinforcement, diagnosing pupil's difficulties and others.

d) **Post-Instructional skills:** Post-Instructional skills consists of writing test, performing a test, interpreting students, planning remedial measures and others.

e) **The feedback Element**

Supervisors give feedback keeping the present system in mind after analysing the teaching competency of the trainees. Feedbacks are dependent on reliable and authentic sources of Microteaching.

- Teachers give oral feedback.
- The participating peer groups fill observation schedules.
- Right feedback is given by audio-tape recording.
- But the most accurate feedback is given by Video-tape recording.

f) **Safe Practice Ground**

The classroom features are also available in the micro-teaching laboratory.

C. Micro Teaching Skills

Different types of micro-teaching skills are as follow:

a) Introduction of Skills
b) Skills of Explaining
c) Skills of Probing Questions
d) Skills of Blackboard Writing

Now you have to know the Micro-teaching skills, but we go in deeper and let us know about them.

a) Introduction of Skills

The Micro-teaching skills of introduction involved using precious knowledge and also telling them exactly what they can expect from a lesson. Teachers can use interesting or engaging words to get their students. Teachers can maximise the use of students' previous knowledge and give relevance of Micro-Teaching to teachers' education of statements.

b) Skills of Explaining

Teachers need to learn microteaching skills of explaining to make students understand concepts and ideas properly and can explain well is able to make a topic or lesson effective. They should give examples by highlighting relationships among different ideas.

c) Skills of Probing Questions

The Skills of Probing Questions that help put meaningful, specific, clear, relevant and precise questions to students and get a better understanding. This skill is used to test the understanding and knowledge of students.

d) Skills of Blackboard Writing

The Skill of Blackboard Writing is used to draw attention and used to bring about clarity to concepts. It is also used to shift focus, grab attention and help add variety to a lesson.

D. The Teaching Models

By using teaching models, a tape, a film, or a demonstration by the supervisor, the learners of teaching skills can study the desired patterns of behaviour.

The following programmes can be found in Microteaching:

- In teaching a specific teaching behaviour, a particular skill is taught to pupils.
- To sharpen the particular skill, the teachers are given a demonstration lesson.
- Students are taught a pre-decided model on a suitable topic relating to the particular skill which he wants to master.
- By using an audio-tape or videotape recorder, students get instant feedback. The supervisor helps students to observe and analyze the lesson. The feedback session by the peer group is called a 'critique session"
- The comments of the supervisor direct the teacher to re-plan or re-structures the same lesson to sharpen the skill.
- Once, the pupil revised the lesson, it is re-taught to them.
- Then again feedback is given to them which is called the 're-feedback session'.

16.4 Procedure of micro teaching

Micro-teaching is a teacher training technique which helps the teacher trainee to master the teaching skills.n the actual process the teacher was asked to prepare a short lesson (ideally for 20 minutes) for a handful of students, who were not necessarily his/her students in real life. This session was simultaneously recorded and later viewed by the teacher and the students and constructive feedback was noted on their views on the session delivered. There are various levels of teaching involved. The various factors affecting teaching are also applicable here.

The teacher got feedback from the students as well as colleagues who judged the teaching process from the microscopic view. It requires the teacher trainee

1. to teach a single concept of content
2. using a specified teaching skill
3. for a short time
4. to a very small member of pupils

In this way the teacher trainee practises the teaching skill in terms of definable, observable, measurable and controlable form with repeated cycles till he attains mastery in the use of skill.

Steps of Micro-teaching

The Micro-teaching programme involves the following steps :

Step I Particular skill to be practised is explained to the teacher trainees in terms of the purpose and components of the skill with suitable examples.

Step II The teacher trainer gives the demonstration of the skill in Micro-teaching in simulated conditions to the teacher trainees.

Step III The teacher trainee plans a short lesson plan on the basis of the demonstrated skill for his/her practice.

Step IV The teacher trainee teaches the lesson to a small group of pupils. His lesson is supervised by the supervisor and peers.

Step V On the basis of the observation of a lesson, the supervisor gives feedback to the teacher trainee. The supervisor reinforces the instances of effective use of the skill and draws attention of the teacher trainee to the points where he could not do well.

Step VI In the light of the feed-back given by the supervisor, the teacher trainee replans the lesson plan in order to use the skill in more effective manner in the second trial.

Step VII The revised lesson is taught to another comparable group of pupils.

Step VIII The supervisor observes the re-teach lesson and gives re-feed back to the teacher trainee with convincing arguments and reasons.

Step IX The 'teach – re-teach' cycle may be repeated several times till adequate mastery level is achieved.

1. Micro-teaching Cycle

The six steps generally involved in micro-teaching cycle are

Plan	Teach	Feedback
Replan	Reteach	Refeedback.

There can be variations as per requirement of the objective of practice session. These steps are diagramatically represented in the following figure :

Plan	Teach
Refeedback	Feedback
Reteach	Replan

16.5 Self-Check Exercise – 1

1. What best defines micro teaching?
    a. Teaching small groups of students
    b. Teaching with miniature props
    c. A scaled-down teaching session focusing on specific skills
    d. Teaching with microscopes
2. Micro teaching involves practicing teaching skills in a _____ setting.
3. True or False: Micro teaching is primarily used for large-group instruction.
4. What is the first step in the procedure of micro teaching?
    a. Delivering a full-length lecture
    b. Planning a lesson
    c. Receiving feedback
    d. Conducting assessment

16.6 Summary

In this lesson we learned about the micro teaching. Microteaching works as a focused instrument which helps to practice essential teaching skills safely and effectively at any age. Microteaching is a focused teacher training technique developed in the 1960s at Stanford University. It involves trainee teachers practicing specific teaching skills in a simplified, controlled environment. The process typically consists of teaching a short lesson (5-10 minutes) to a small group of peers or volunteer students, followed by feedback, reflection, and re-teaching. This method allows for targeted skill development, immediate feedback, and the opportunity for self-improvement in a low-stakes setting. The procedure involves planning, teaching, receiving feedback, re-planning, re-teaching, and final feedback. Microteaching offers several benefits, including focused skill development, confidence building, and the promotion of peer learning. However, it also has limitations, such as the artificial nature of the setting, time constraints, and potential anxiety for some trainees. Despite these drawbacks, microteaching remains a valuable tool in teacher education programs, bridging the gap between theory and practice. It provides a structured approach for new teachers to hone their skills, reflect on their performance, and gradually build the competencies needed for effective classroom instruction. While it may not fully replicate the complexities of a real classroom, microteaching serves as an important stepping stone in preparing educators for the challenges of full-scale teaching.

16.7 Glossary

Microteaching: A teacher training technique involving the practice of specific teaching skills in a scaled-down, controlled setting.
Teaching Skill: A specific ability or technique used in the process of instruction, such as questioning, explaining, or using visual aids.
Feedback: Constructive comments and suggestions provided to the trainee teacher after a microteaching session.
Re-teach: The process of teaching the same lesson again after incorporating feedback and modifications.
Peer Observation: The practice of having fellow trainees watch and provide feedback on a microteaching session.
Reflective Practice: The process of thinking about one's teaching performance and considering ways to improve.
Scaled-down Teaching: The practice of teaching a smaller group for a shorter time than in a typical classroom setting.
Skill Acquisition: The process of learning and mastering specific teaching abilities through practice and feedback.

16.8 Answers to Self-Check Exercise

1. A scaled-down teaching session focusing on specific skills
2. controlled and supportive
3. False
4. Planning a lesson

16.9 References/Suggested Readings

1. **ALLEN, D.W.**et.al. *Micro-teaching – A Description*. Stanford University Press, 1969.

2. **ALLEN, D.W , RYAN, K.A.** *Micro-teaching Reading Mass.:* Addison Wesley, 1969.

3. **GREWAL, J.S., R. P. SINGH.** *"A Comparative Study of the Effects of Standard MT With Varied Set of Skills Upon General Teaching Competence and Attitudes of Pre-service Secondary School Teachers."* In **R.C. DAS**, et.al.Differential Effectiveness of MT Components*,* New Delhi, NCERT, 1979.

4. **PASSI, B.K.,** *Becoming Better Teachers.* Baroda : Centre for Advanced Study in Education, M. S. University of Baroda, 1976.

5. **SINGH, L. C.** et.al. *Micro-teaching – Theory and Practice,* Agra : Psychological Corporation, 1987.

6. **SHAH, G. B.** *Micro-teaching – Without Television,* NutanShikshan, 1970.

7. **SHARMA, N. L.,** *Micro-teaching : Integration of Teahing Skills in SahityaParicharya,* Vinod PustakMandir, Agra, 1984.

8. **VAIDYA, N.** *Micro-teaching : An Experiment in Teacher Training. The Polytechnic Teacher, Technical Teacher,* Technical Training Institute, Chandigarh, 1970.

16.10 Terminal Questions

- Prepare a lesson plan of any class in any topic according the micro teaching.
- What is the procedure of micro teaching and explain the concept of feedback in micro teaching.? Describe the importance of reflective practice in micro teaching, highlighting how it enhances teaching effectiveness.
- Explain the steps involved in the post-teaching analysis phase of micro teaching, highlighting its significance in professional development. Discuss the role of video recording in the micro teaching process.

****

Unit - 17

Micro -Teaching: Merits and Limitations

Lesson Structure

17.1 Introduction

17.2 Learning Objectives

17.3 Merits of micro teaching

17.4 Limitations of micro teaching

Self-Check Exercise - 1

17.5 Summary

17.6 Glossary

17.7 Answers to Self-Check Exercise

17.8 References/Suggested Readings

17.9 Terminal Questions

17.1 Introduction

Microteaching, a teacher training technique currently practiced worldwide, provides teachers an opportunity to perk up their teaching skills by improving the various simple tasks called teaching skills. With the proven success among the novice and seniors, microteaching helps to promote real-time teaching experiences. The core skills of microteaching such as presentation and reinforcement skills help the novice teachers to learn the art of teaching at ease and to the maximum extent. The impact of this technique has been widely seen in various forms of education such as health sciences, life sciences, and other areas. The emerging changes in medical curricula by the Medical Council of India and the role of medical teachers envisage the need of this special training of teachers and monitoring of their skills for their continued efficient performance at any age. The alleged limitations of microteaching can be minimized by implementing this at the departmental level in several sequences. The author made literature search of research and review articles in various educational databases, journals, and books. From the reference list of published articles, books were also reviewed. This paper presents an outline of the various phases of microteaching, core teaching skills, implementation aspects, and the impact of microteaching on medical education.

17.2 Learning Objectives

After going through this lesson, you should be able to:

- List down the merits of micro teaching
- Discuss the limitations of micro teaching

17.3 Merits of micro teaching

1. It is a useful innovation in teacher education.
2. It develops greater awareness of individual differences.
3. It helps the teacher trainee of many problems such as indiscipline and anxiety.
4. It helps the teacher to prepare in better way.
5. It helps to reduce strain on practicing school.
6. It is quite suitable for refresher courses.
7. It is quite helpful in faster motivation of the students.
8. It is concerned more with self-improvement and self-evaluation.
9. It helps in creating more interest and enthusiasm towards teaching.
10. It helps to develop greater understanding of teaching
11. It generates self-confidence.
12. It helps to develop a healthier attitude towards criticism.
13. It makes teaching more enjoyable.
14. It creates greater awareness of verbal and non-verbal communication.
15. It helps in proper planning of lessons.
16. It is quite useful in teaching the same unit again.

17.4 Limitations of micro teaching

1. It fails of provide necessary training to teacher to teach in a normal class-room.
2. Limited number of students fails to arouse interest in teaching. Teaching of Commerce
3. It is only of a limited application.
4. They require more time for planning.
5. Some-times it becomes difficult for the teacher to divide a bigger unit into smaller units.
6. Many times it creates administrative difficulties.
7. It hampers the class-room climate.
8. It is an artificial situation.
9. It requires the supervisors to be more critical.
10. It requires insightful supervisors.

Self-Check Exercise – 1

a. planning, the teacher delivers a _____ teaching session to a small group of students.
b. True or False: In micro teaching, the teaching session is typically observed by peers or mentors who provide feedback.

17.5 Summary

In this lesson we learned about the micro teaching. Microteaching works as a focused instrument which helps to practice essential teaching skills safely and effectively at any age. Microteaching is a focused teacher training technique developed in the 1960s at Stanford University. It involves trainee teachers practicing specific teaching skills in a simplified, controlled environment. The process typically consists of teaching a short lesson (5-10 minutes) to a small group of peers or volunteer students, followed by feedback, reflection, and re-teaching. This method allows for targeted skill development, immediate feedback, and the opportunity for self-improvement in a low-stakes setting. The procedure involves planning, teaching, receiving feedback, re-planning, re-teaching, and final feedback. Microteaching offers several benefits, including focused skill development, confidence building, and the promotion of peer learning. However, it also has limitations, such as the artificial nature of the setting, time constraints, and potential anxiety for some trainees. Despite these drawbacks, microteaching remains a valuable tool in teacher education programs, bridging the gap between theory and practice. It provides a structured approach for new teachers to hone their skills, reflect on their performance, and gradually build the competencies needed for effective classroom instruction. While it may not fully replicate the complexities of a real classroom, microteaching serves as an important stepping stone in preparing educators for the challenges of full-scale teaching.

17.6 Glossary

Microteaching: A teacher training technique involving the practice of specific teaching skills in a scaled-down, controlled setting.
Teaching Skill: A specific ability or technique used in the process of instruction, such as questioning, explaining, or using visual aids.
Feedback: Constructive comments and suggestions provided to the trainee teacher after a microteaching session.
Re-teach: The process of teaching the same lesson again after incorporating feedback and modifications.
Peer Observation: The practice of having fellow trainees watch and provide feedback on a microteaching session.
Reflective Practice: The process of thinking about one's teaching performance and considering ways to improve.
Scaled-down Teaching: The practice of teaching a smaller group for a shorter time than in a typical classroom setting.
Skill Acquisition: The process of learning and mastering specific teaching abilities through practice and feedback.

17.7 Answers to Self-Check Exercise

1.brief and focused
2.True

17.8 References/Suggested Readings

1. **ALLEN, D.W.**et.al. *Micro-teaching – A Description*. Stanford University Press, 1969.
2. **ALLEN, D.W , RYAN, K.A.** *Micro-teaching Reading Mass.:* Addison Wesley, 1969.
3. **GREWAL, J.S., R. P. SINGH.** *"A Comparative Study of the Effects of Standard MT With Varied Set of Skills Upon General Teaching Competence and Attitudes of Pre-service Secondary School Teachers."* In **R.C. DAS**, et.al.Differential Effectiveness of MT Components*,* New Delhi, NCERT, 1979.
4. **PASSI, B.K.,** *Becoming Better Teachers.* Baroda : Centre for Advanced Study in Education, M. S. University of Baroda, 1976.
5. **SINGH, L. C.** et.al. *Micro-teaching – Theory and Practice,* Agra : Psychological Corporation, 1987.
6. **SHAH, G. B.** *Micro-teaching – Without Television,* NutanShikshan, 1970.
7. **SHARMA, N. L.,** *Micro-teaching : Integration of Teahing Skills in SahityaParicharya,* Vinod PustakMandir, Agra, 1984.
8. **VAIDYA, N.** *Micro-teaching : An Experiment in Teacher Training. The Polytechnic Teacher, Technical Teacher,* Technical Training Institute, Chandigarh, 1970.

17.9 Terminal Questions

- Prepare a lesson plan of any class in any topic according the micro teaching.
- What is the procedure of micro teaching and explain the concept of feedback in micro teaching.? Describe the importance of reflective practice in micro teaching, highlighting how it enhances teaching effectiveness.
- Explain the steps involved in the post-teaching analysis phase of micro teaching, highlighting its significance in professional development. Discuss the role of video recording in the micro teaching process.

****

Unit - 18

Components of skill of teaching

Lesson Structure

18.1 Introduction

18.2 Learning Objectives

18.3 Components of teaching skills

18.3.1 Proving Question

18.3.2 Reinforcement

18.3.3 Stimulus variations

Self-Check Exercise - 1

18.4 Summary

18.5 Glossary

18.6 Answers to Self-Check Exercise

18.7 References/Suggested Readings

18.8 Terminal Questions

18.1 Introduction

Micro-teaching is one of the most recent innovations in teacher training programme. It aims at modifying teacher's behaviour according to the specified objectives. In a micro-teaching procedure, the trainee is engaged in a scaled down teaching situation. It is scaled down in terms of class size, class time and teaching task. A teacher can use several techniques and procedures to bring about effective learning on the part of his students. These activities include introducing the lesson, demonstration, explaining or questioning. These activities form what are called teaching skills. Micro-teaching allows practicing any skill independently and integrating it with other skills in familiar environment.

18.2 Learning Objectives

After going through this lesson, you should be able to:

- Discuss the main components of teaching skills.
- Explain the proving questioning with components
- Explain the skill of reinforcement with example\
- Explain the skill of stimulus variation

18.3 Components of teaching skills

It is not possible to train all the pupil teachers in all these skills in any training programme because of the constraints of time and funds. Therefore a set of teaching skills which cuts across the subject areashas been identified. They have been found very useful for every teacher. The set of these skills are :

1. Skill of Probing Questions
2. Skill of Explaining
3. Skill of Illustrating with Examples
4. Skill of Reinforcement
5. Skill of Stimulus Variation
6. Skill of Classroom Management
7. Skill of using Blackboard

S.No.	Skill	Components
1.	Probing Questions	Prompting, seeking further information, redirection, focusing, increasing critical awareness.
2.	Explaining	Clarity, continuity, relevance to content using beginning and concluding statements, covering essential points.
3.	Illustrating with examples	Simple, relevant and interesting examples appropriate media, use of inducts, deductive approach.
4.	Stimulus variation	Body movements, gestures, change in speech pattern, change in interaction style, pausing, focusing, oral-visual switching.
5.	Reinforcement	Use of praise words and statements, accepting and using pupils' idea, repeating and rephrasing, extra vertical cues, use of pleasant and approving gestures and expressions, writing pupils' answer on the black board.
6.	Classroom Management	Call pupils bynames, Makenorms of classroom behaviour, attending behaviour reinforced, clarity of direction, check non-

		attending behaviour, keep pupils in Eye Span, check inappropriate behaviour immediately.
7.	Use of blackboard	Legible, neat and adequate with reference to content covered.

18.3.1 Proving Question

Questioning skill is an important skill to be developed by any teacher. It is all the more important for all teacher as questioning stimulates the thinking of the students and gets the concepts clarified and hence has significant contribution to teaching and learning for all subjects. Probing is going deep into the pupils' responses by asking a number of questions about what they already know and to lead them to the correct response or to remove any ambiguity or misconception, which has led to such responses. Probing is to be done where there is no response, or incorrect response, or partially right response.

Components and Description of Skill of Probing Questions

S.No.	Components	Description of behaviour
1	Prompting	This technique is going deep into the pupil's initial response. This technique is employed when the student gives no response to the correct response with a series of hints or prompts through step-by-step questioning process. Giving hints or clues to lead the student from no response or wrong response to correct response.
2	Seeking further information	This technique involves leading a pupil from partially correct or incomplete response to the correct response through questioning. Questions that lead the students from partially correct incomplete response to correct answer.
3	Refocusing	This technique is employed when the student gives completely correct response. Refocusing through questioning helps the pupils to view the correct response from a different viewpoint. Questions that help the student to view his correct response in a broader perspective.
4	Redirection	Directing the same questions to other pupils when there is a wrong response, incomplete response, partially right response, or while prompting or while seeking further information and so on.

5	Increasing critical awareness	It involves putting questions such as 'how' and 'why' to increase the critical awareness of the pupils about the correct response. Thus this technique is followed when the students give correct response.

18.3.2 Reinforcement

Reinforcement constitutes one of the essential conditions of learning. Hence every teacher has to master the skill for adopting appropriate strategies for reinforcing the learners. This skill has to be exhibited by teachers in the manner in which they respond to the responses and actions of pupils. Reinforcement results in response modification and is based on the principle of feed back followed by immediate rewarding of desirable or correct responses and actions. Encouraging reactions of a teacher would strengthen and discouraging reaction would weaken pupils responses involved in the learning process. Hence teacher should manage his reactions to pupil response with skill. The stimuli that provide or contribute to the pleasant experience are called positive reinforcement or desirable behaviours. While the stimuli providing unpleasant experience can be termed as negative reinforces. Thus in the class room teaching positive reinforces are used for strengthening the desirable responses of learners and negative reinforces for weakening or eliminating the undesirable responses or behaviours. Components of the Skill of Reinforcement

1) Positive verbal reinforcement Students can be motivated through verbal expressions like good, right, excellent, well done, fine, carry on, go ahead etc. Using extra verbal clues like um, aha etc also will encourage pupils to encourage pupils to progress.

2) Positive non-verbal reinforcement Teacher uses gestures or some other behaviour to reinforce pupils learning. Nodding of the head, smiling, patting, friendly look etc. are examples. Writing pupils answers on the blackboard for others to watch also can be an effective reinforcement.

3) Negative verbal reinforcement. Words like wrong, incorrect, no, as well as sarcastic remarks can be considered as negative reinforcement.

4) Negative non-verbal reinforcement. Disapproval without using words has the effect of negative reinforcement. Gestures such as frowning, staring, looking angrily, shaking the head, also have the same effect.

5) Denial of reinforcement Certain teachers do not attempt reinforcement in situations that warrant it. This is likely to discourage pupils. Such teachers are really losing an opportunity to inspire pupils for active participation in the learning process.

6) Inappropriate use of reinforcement Reinforces should be wisely selected by teachers. It should suit the nature of the response. Inappropriate use will lesser its effect.

18.3.3 Stimulus variations

Any external force that disturbs the equilibrium is known as stimulus. So by stimulus variation we mean the change n the intensity of the external force by a teacher while teaching. The skill of stimulus variation in other words means the regulation of stimuli by the teacher while teaching. Thus skill of stimulus variation may be defined as a set of observations for bringing desirable change or variation in the stimuli used to secure and sustain pupil's attention towards class room activities. It has been generally observed that children especially up to the age of 10 years are not able to attend to one thing for a long period. The effectiveness of the teaching learning process in such a situation depends to a great extent on the stimulus variation used by

the teacher behaviour. Some of the common teacher behaviours in the class room which fall under variation are:

Movement of the Teacher in the class This component of the skill helps in capturing and sustaining the attention of the class while teaching. Therefore the movement of the teacher in the class is of essential. But only meaningful movements are to be made. Thus a teacher while practicing the skill of stimulus variation should learn to make well planned meaningful movements for securing as sustaining the attention of students.

Gestures of the Teacher in the class Gestures are non-verbal clues which enhance the value of the message. They are usually made with the help of the movement of the eye, hand, head, body, facial expressions, like extending the hands in a typical shape to indicate how big or small one object is.Change of voice by the Teacher

It involves the variation in the tone, pitch or speed of his or her voice,to pay apecial attention to a particular point or sentence or paragraph while teaching. Variation of voice by the teacher is directly noted by the students and it has direct influence in capturing the attention of the students.

A. Focusing by the Teacher.

The component of focusing of the skill of stimulus variation refers to the behaviours that help in focusing pupil's attention on a particular object word, idea, rule, concept, method, formula or generalization during teaching. To exercise the component of focusing by the teacher the following methodology is followed.

a) The use of verbal statements "look here in the map", "it is important to note"

b) The use of gestures

c) The use of both verbal statements and non-verbal gestures.

Change in interaction styles by the Teacher The process of teaching learning involves interaction. Change in interaction style means the change in the process of teaching learning. There are three main styles of interaction such as

a) Teacher pupils or teacher group interaction (teacher coveys or gets responses from the class or groups as a whole)

b) Teacher pupil interaction (here teacher communicates with an individual pupil.)

c) Pupil-pupil interaction here a teacher employs many pupils in a dialogue without doing direct discussion.

Pausing by the Teacher

Pausing refers to the behaviour related wit h introducing silence during teaching. A pause of approximately of 3 or 4 seconds is regarded as quite effective in securing and sustaining the pupils attention in the class while teaching.

Aural-Visual Switching

This behaviour refers to the introduction of the change or variation in the use of medium, from aural to visual, from visual to aural or a combination of aural and visual. Physical Involvement of Students

This component of the skill of stimulus variation refers to the introduction of the change or variation in the types, forms and styles of the physical involvement of the pupil in the class. Sometimes they may be engaged in dramatizing and other times in writing on the blackboard, participating in the demonstration or handling some instrument or aid material etc

Self-Check Exercise – 1

1. What are the essential components of teaching skills?
    a. Lecturing and grading
    b. Planning, delivery, and assessment
    c. Memorization and recitation
    d. Discipline and classroom management
2. Teaching skills encompass the ability to effectively _____, _____, and _____ student learning.
3. True or False: Teaching skills primarily involve conveying information without considering student engagement or understanding.
4. What is the purpose of a proving question in teaching?
    a. To test student knowledge
    b. To challenge misconceptions
    c. To demonstrate concepts
    d. To encourage critical thinking
5. A proving question is designed to prompt students to _____ and _____ their understanding through reasoning and evidence.
6. True or False: Proving questions have a single correct answer.
7. What is the purpose of reinforcement in teaching?
    a. To punish students for incorrect answers
    b. To reward students for good behavior
    c. To strengthen desired behaviors or learning outcomes
    d. To discourage student participation
8. Reinforcement involves providing _____ or _____ consequences to increase the likelihood of desired behaviors or learning outcomes.
9. True or False: Reinforcement is only effective when applied consistently.
10. What is the purpose of stimulus variations in teaching?
    a. To maintain student attention
    b. To simplify lesson content
    c. To eliminate distractions
    d. To discourage active engagement
11. Stimulus variations involve changing _____ or _____ to enhance student engagement and learning.
12. True or False:Stimulus variations are only necessary for students with attention difficulties.

18.4 Summary

In this lesson we learned about different skill and their components.The goal of a teaching strategy is to facilitate learning, to motivate learners, to engage them in learning, and to help them focus. There is no one best strategy; we can select from several instructional strategies for just

about any subject. It is important to vary instruction to not only keep the students' interest, but also to allow them to interact with content in a variety of ways that appeal to various learning styles.The components of teaching skills encompass a range of techniques and strategies that educators employ to enhance the learning process. These components work together to create an engaging and effective educational environment. Probing questions are a crucial element, allowing teachers to delve deeper into students' understanding, encouraging critical thinking, and promoting active participation in the learning process. Reinforcement, another key component, involves providing positive feedback and encouragement to students, strengthening desired behaviors and motivating continued learning. Stimulus variation refers to the teacher's ability to maintain student interest and attention by varying their teaching methods, voice, movement, and instructional materials. This component helps prevent monotony and caters to different learning styles within the classroom. Together, these skills—probing questions, reinforcement, and stimulus variation—form a foundation for effective teaching, enabling educators to create dynamic, interactive lessons that engage students and facilitate deeper understanding of the subject matter. When applied skillfully, these components can significantly enhance the overall quality of instruction and contribute to a more productive and enjoyable learning experience for students.

18.5 Glossary

Teaching skills: The various techniques and abilities educators use to facilitate learning and instruction effectively.
Probing questions: Questions designed to encourage deeper thinking, explore students' understanding, and stimulate further discussion on a topic.
Reinforcement: The use of positive feedback, praise, or rewards to encourage and strengthen desired learning behaviors or responses.
Stimulus variation: The practice of changing teaching methods, voice, movement, or materials to maintain student interest and accommodate different learning styles.
Critical thinking: The ability to analyze, evaluate, and form judgments about information or ideas.
Active participation: Student engagement in the learning process through discussion, questioning, or hands-on activities.
Learning styles: Different approaches or ways of learning that students prefer, such as visual, auditory, or kinesthetic methods.
Feedback: Information provided to students about their performance or understanding, aimed at improving their learning.
Instructional strategies: Methods and techniques used by teachers to help students learn and achieve educational objectives.
Engagement: The level of attention, curiosity, and involvement that students show in their learning process.

18.6 Answers to Self-Check Exercise

1. Planning, delivery, and assessment
2. plan lessons, deliver instruction, assess
3. False
4. To encourage critical thinking
5. analyze, justify
6. False
7. To strengthen desired behaviors or learning outcomes
8. rewards, positive

9. True
10. To maintain student attention
11. instructional methods, materials
12. False

18.7 References/Suggested Readings

1. ALLEN, D.W. et.al. Micro-teaching – A Description.Stanford University Press, 1969.

2. ALLEN, D.W , RYAN, K.A. Micro-teaching Reading Mass.: Addison Wesley, 1969.

3. GREWAL, J.S., R. P. SINGH. “A Comparative Study of the Effects of Standard MT With Varied Set of Skills Upon General Teaching Competence and Attitudes of Pre-service Secondary School Teachers.” In R.C. DAS, et.al.Differential Effectiveness of MT Components, New Delhi, NCERT, 1979.

4. PASSI, B.K., Becoming Better Teachers. Baroda : Centre for Advanced Study in Education, M. S. University of Baroda, 1976.

5. SINGH, L. C. et.al. Micro-teaching – Theory and Practice, Agra: Psychological Corporation, 1987.

6. SHAH, G. B. Micro-teaching – Without Television, NutanShikshan, 1970.

7. SHARMA, N. L., Micro-teaching : Integration of Teahing Skills in SahityaParicharya, Vinod PustakMandir, Agra, 1984.

8. VAIDYA, N. Micro-teaching : An Experiment in Teacher Training. The Polytechnic Teacher, Technical Teacher, Technical Training Institute, Chandigarh, 1970.

18.8 Terminal Questions

- What are the main teaching skills in teaching. List down the main components of different skills?
- Use the different components of reinforcement, proving questioning, and stimulus variation in the class.
- Explain the significance of assessment in teaching skills.Discuss how effective planning contributes to the development of teaching skills, providing examples of key elements in lesson planning.
- How can teachers formulate effective proving questions?Discuss the role of proving questions in promoting deeper learning and critical thinking skills, providing examples of how they can be incorporated into different subject areas.
- Explain the difference between positive reinforcement and negative reinforcement.Discuss the role of reinforcement in shaping student behavior and

academic performance, highlighting strategies for effectively implementing reinforcement techniques in the classroom.

- Discuss the benefits of using stimulus variations to accommodate diverse learning styles and preferences, providing examples of how different types of learners may benefit from varied instructional approaches.Provide examples of stimulus variations that can be used in a classroom setting.

****

Unit - 19

Flander's Interaction

Lesson Structure

19.1 Introduction

19.2 Learning Objectives

19.3 Flander's Interaction Analysis

Self-Check Exercise - 1

19.4 Summary

19.5 Glossary

19.6 Answers to Self-Check Exercise

19.7 References/Suggested Readings

19.8 Terminal Questions

19.1 Introductions

The teaching-learning situations in the class-room involve interaction between the teacher and the students. The success of a teacher may be judged through the degree of effectiveness of his teaching which may be objectively assessed through his class-room behavior or interaction. Thus a systematic or objective analysis of the teacher's classroom interaction may provide a reliable assessment of what goes on inside the class-room in terms of teaching and learning.

19.2 Learning Objectives

After going through this lesson, you should be able to:

- Explain the analysis of flander's interaction
- Discuss the simulation and simulated teaching
- List down the advantage and disadvantage of simulated teaching

19.3 Flander's Interaction Analysis

Interaction Analysis is a technique for capturing quantitative and qualitative dimensions of teacher verbal behaviour in the classroom. As an observational system, it captures the verbal behaviour of teachers and students that is directly related to the social – emotional climate of the classroom. It was developed by Ned Flanders out of Social Psychological Theory and was designed to test the effect of social emotional climate on students' attitudes and learning. The theoretical

assumptions of Interaction Analysis (IA) are that in a normal classroom situation, verbal communication is predominant; the teacher exerts a great deal of influence on the student and the student's behaviour is affected to a great extent by this type of teacher behaviour exhibited. Flanders' ten category system that attempts to categorize all the verbal behaviour to be found in the classroom is explored in this paper. The objective is the advocacy for the adoption of FIAC in the instructional process in our public schools, since the quantity and quality of teacher – student interaction is a critical dimension of effective classroom teaching and enhanced learning.

A. Meaning of class-room interaction analysis:

Class-room interaction analysis refers to a technique consisting of objective and systematic observation of the class-room events for the study of the teacher's class-room behavior and the process of interaction going inside the class-room.

Thakur's view: According to Dr. S.K. Thakur, class-room interaction analysis "may be defined as an instrument which is designed to record categories of verbal interaction during, or from, recorded teaching learning sessions. It is a technique for capturing qualitative and quantitative dimensions of teacher's verbal behavior in the class-room."

Ruhela's view: Dr. Satya Pal Ruhela, in his book 'Educational Technology' writes that class interaction analysis may be conveniently divided into two parts:

(i) verbal interaction

(ii) non-verbal interaction

a) Investigators studied:

(1) Teacher-pupil interaction

(2) Pupil-pupil interaction

(3) Interaction with various materials, and the focus mainly on:

- Affective elements
- Cognitive elements
- Psychomotor elements
- Activity
- Content
- Physical environment
- Sociological structure

b) Basic Theoretical Assumptions of Interaction Analysis:

(i) Predominance of verbal communication

(ii) Higher reliability of verbal behavior

(iii) Consistency of verbal statements

(iv) Teacher's influence

(v) Relation between students and teacher

(vi) Relation between social climate and productivity

(vii) Relation between class-room climate and learning

(viii) Use of observational technique

(ix) Role of feedback

(x) Expression through verbal statement

c) Categories

1. Accept feeling

2.Praises or encourages

3. Accept ideas

Indirect Influence

4. Asks questions

5. Lectures

6. Gives directions

7. Criticizes

8. Pupil's response

9. Student talk Initiation

10. Silence or confusion

d) Characteristics (Advantages) of Flander's Verbal Interaction Analysis:

1. Scientific technique

2. Systematic recording

3. Analysis of class-room behavior

4. Representative of class-room behavior

5. Observation technique for class-room behavior

6. Measuring instrument for class-room teaching

7. Evaluative device

8. Feedback device

9. Supplementary device

10. Useful for theory of teaching

e) Procedure of Flanders Interaction Analysis:

(1) Encoding process

- Code number
- Place of sitting
- Recording the category number
- Instant recording
- Recording in uncertainty
- Not to shift into opposite classification
- No biases
- Recording categories after three seconds

(2) Decoding process

- Construction of an interaction matrix

f) Precautions in the use of Flander's Interaction Analysis:

(1) Trained observers

(2) Avoiding value judgements

(3) Two observers

(4) Inspecting the matrix table

(5) Comparison between matrices

(6) Class-room recording

(7) Number of observations

(8) Indicating sequence of events

(9) Underlining code number

g) Limitations of Flander's System of Interaction Analysis:

(1) Not useful for non-verbal behavior

(2) Narrow structure of teaching behavior

(3) No balance in categories

(4) No information about content

(5) No place for pupil-pupil interaction

(6) No place for recording reactions

(7) No value judgements

(8) No classification of certain behaviors

(9) Not economical

(10)Non-availability of trained observers

h) Transactional analysis

Transactional analysis is one of the most accessible theories of modern psychology. Transactional Analysis (T.A.) was founded by *Dr. Eric Berne in 1950*. T.A. is a social psychology and a method to improve communication. The theory outlines how we have developed and treat ourselves. How we relate and communicate with others, and offer suggestions and interventions which will enable us to change and grow.

Transaction- the fundamental unit of social intercourse.

American heritage dictionary- a system of psycho-therapy that analyses personal relationships and interactions in terms of confliction or complementary ego states that correspond to the roles of parent, child and adult. T.A. is the method for studying interactions between individuals.

Ego state- a consistent pattern of feeling and experience directly related to corresponding consistent pattern of behavior. **Berne**

Ego states explain how we are made up, and how we relate to others. They categorize the ways we think, feel and behave and are called Parent, Adult and Child.

Self-Check Exercise– 1

1. What does Flander's Interaction Analysis primarily focus on?
    a. Student assessment
    b. Teacher-student interactions
    c. Classroom design
    d. Curriculum development

2. Flander's Interaction Analysis is a systematic method for observing and categorizing _____ in the classroom.
3. True or False: Flander's Interaction Analysis emphasizes the importance of passive student involvement.

19.4 Summary

In this lesson we learned about the Flander's Interaction analysis and simulated teaching. Simulated teaching is an innovative approach because students engage in genuine communication in playing their roles. Active involvement stems from participation in worthwhile, absorbing interaction which tends to make students forget they are learning a new skill. Students have the opportunity to try out new behaviors in a safe environment, which helps them develop long-term motivation to master additional skills. In addition to encouraging genuine communication, active involvement, and a positive attitude, the simulated "real life" problems help students develop their critical thinking and problem solving skills. Flanders' Interaction Analysis, developed by Ned Flanders in the 1960s, is a system for observing and analyzing classroom interaction between teachers and students. It categorizes classroom verbal behavior into ten categories, seven for teacher talk, two for student talk, and one for silence or confusion. This system helps in understanding the dynamics of classroom communication, particularly the balance between teacher and student participation. It provides insights into teaching styles, classroom climate, and patterns of interaction, which can be used to improve teaching effectiveness.Simulation and Simulated Teaching, on the other hand, are techniques used in teacher training to replicate real classroom scenarios in a controlled environment. Simulation involves creating artificial but realistic teaching situations where trainees can practice their skills. Simulated teaching goes a step further by having trainee teachers conduct full lessons with peers acting as students. These methods allow for experimentation with different teaching strategies, immediate feedback, and reflection without the pressure of a real classroom. They help bridge the gap between theory and practice, allowing teachers to develop confidence and competence before entering actual classrooms.

19.5 Glossary

Flanders' Interaction Analysis: A system for categorizing and analyzing verbal behavior in the classroom to study teacher-student interaction patterns.
Direct influence: Teacher behaviors that limit or restrict students' freedom of action in the classroom.
Indirect influence: Teacher behaviors that encourage student participation and initiative.
Teacher talk: Verbal behavior by the teacher, including lecturing, giving directions, and praising or encouraging students.
Student talk: Verbal behavior by students, including responses to the teacher and student-initiated talk.
Simulation: The creation of artificial but realistic teaching scenarios for training purposes.
Simulated teaching: A teacher training technique where trainees conduct full lessons with peers acting as students.
Interaction patterns: The typical ways in which teachers and students communicate in the classroom.
Classroom climate: The overall atmosphere or environment in a classroom, influenced by teaching style and interaction patterns.
Reflective practice: The process of analyzing one's own teaching performance to improve future practice.

19.6Answers to Self-Check Exercise

Self-Check Exercise– 1

1. Teacher-student interactions
2. teacher behaviors and interactions
3. False

19.7References/Suggested Readings

1. Amidon, E.J. & Flanders, N.A. (1963). Interaction Analysis as a feedback system. Interaction Analysis Theory, Research and Application. E.J. Amidon and J.B. Hough. Eds. Philadelphia: Addisn-Wesly publishing company. Inc. Chapter 1: 121 – 140.

2. Amidon, E.J. & Hunter, E. (1966). Verbal Interaction in the classroom: The verbal interaction category system. Interaction Analysis Theory, Research and Application. E.J. Amidon and J.B. Hough (Eds.) Philadelphia: Addison – Wesley Publishing Company. Inc. Chapter 2: 141 – 149.

3. Federal Republic of Nigeria (FRN). (2013). National Policy on Education (6th edition) Abuja: NERDC Press

4. Gay, L.R.(2000). Competencies for Analysis and Application (5TH ed) Educational Research Florida International University. Pp 448-457

5. Hafix, M.M; Naseerud din, M &Ishitiaq, H. (2008).Teacher-student verbal interaction patterns at the tertiary level of education. Contemporary Issues in Education Research 1, 1: pp 45-50

6. Inamullah, M. (2005). Patterns of classroom interaction at different educational levels in the light of Flanders' interaction analysis. PhD. Thesis Retrieved Sept.26, 2012, from http://eprintshec.goal.pk

7. Jasraj, Kaur. (2013). Flanders interaction analysis category system (FIAC). Distance Education PUP

8. Newman, M. (2001). PEPBL Methodology, Working Paper 6: Flanders Interaction Analysis.

9. Niki,F.R. (2011). Flanders Interaction Analysis. Retrieved April 23, 2015, from http://www.slideshare.net/selvabarady/flanders-interaction-analysis

10. Tisher, R.P. (2007) Classroom Interaction Analysis: the new religion. Journal Research in Science Education 2: 35 – 49.

19.8 Terminal Questions

- Explain the significance of Flander's Interaction Analysis in teacher professional development.Discuss the key components of Flander's Interaction Analysis and how they contribute to understanding and improving classroom dynamics.

****

Unit - 20

Simulated Teaching

Lesson Structure

20.1 Introduction

20.2 Learning Objectives

20.3 Simulation and simulated teaching

Self-Check Exercise - 1

20.4 Summary

20.5 Glossary

20.6 Answers to Self-Check Exercise

20.7 References/Suggested Readings

20.8 Terminal Questions

20.1 Introductions

The teaching-learning situations in the class-room involve interaction between the teacher and the students. The success of a teacher may be judged through the degree of effectiveness of his teaching which may be objectively assessed through his class-room behavior or interaction. Thus a systematic or objective analysis of the teacher's classroom interaction may provide a reliable assessment of what goes on inside the class-room in terms of teaching and learning.

20.2 Learning Objectives

After going through this lesson, you should be able to:

- Discuss the simulation and simulated teaching
- List down the advantage and disadvantage of simulated teaching

20.3 Simulation and simulated teaching

Simulations (and models, too) are abstractions of reality. Often they deliberately emphasize one part of reality at the expense of other parts. Sometimes this is necessary due to computer power limitations. Sometimes it's done to focus your attention on an important aspect of the simulation. Whereas models are mathematical, logical, or some other structured representation of reality, simulations are the specific application of models to arrive at some outcome. In its broadest sense, simulation is imitation. We've used it for thousands of years to train, explain and entertain.

Simulation is one activity that can contribute to a successful and highly enjoyable experience. It engages students by placing them directly into the conflict of the real situation. It comes alive as students interact with one another.Since a long time ago, simulation has been used by human and even animal to train their young ones for adaptation with their environment. At first, chess was assumed as the original form of the war game later on it developed into more serious and sophisticated military game to train new soldiers. The simulation technique has been applied successfully in the last decade in education .The advantages of the technique has been known all over the world by educationist. The National Games Council was established in 1961 in USA and in 1970, the International Simulation and Games Association was found in Germany. It is the evidence of the importance of simulation technique.

S.S. Chauhan defined gaming and simulation as “a gestalt communication mode, a future’s language which combine a game-specific language and appropriate communication technologies with the multilogue interaction pattern.” (Chauhan, 1979: 120)

A. STEPS OF SIMULATED TEACHING

1. Assignment of Roles:

The first step of this technique is the assignment of roles to the pupil-teachers. All the pupil-teachers have to play all the roles. All the pupils play the roles of teacher, pupil and the supervisor.

2. Selection and Discussion of Social Skills for Practice:

After assigning the roles in the first step, some specific social skills are selected and discussed. The topics related to these skills are practiced. For practice, those topics are selected in selected social skills “fit”.

3. Preparation of Work Schedule:

After this, it is decided that who should initiate the simulated teaching. When it should be summed up? Who will sum it up? Who will interrupt? etc. hence, such work schedule is decided before-hand.

4. Determination of Observation Technique:

In this step, decision regarding the observation technique is taken. It also includes the types of data to be recorded and their way of interpretation. Hence, this step is related to the procedure of evaluation.

5. Organization of First Practice Session:

After all the preparations, the first practice session is organized and the feedback is provided to all the participant pupil-teachers regarding their teaching work. If the need is felt, some changes can be made for second session. The data regarding the first practice session is recorded so that the evaluation of the teaching behavior can be conducted on the basis of that recorded data. Hence, the sessions go on and everyone gets his turn.

6. Altering the Procedure:

After the first session, necessary changes are made in the procedure. In this, topics are changed. Also, the pupil-teacher, observer and the teaching skills are altered. Hence, in this altered procedure too everyone plays the role of a teacher and all the pupil teachers get a chance to practise. Hence, this cycle goes on till the pupil-teacher is trained.

B. ADVANTAGES

Motivational Advantages:

Games are engaging and motivating approach to students. It gets them involved and holds their attention longer. Children usually learn and retain more knowledge using role play.

2. Removal of Student – teacher Polarization:

Students actually engage in the learning process rather than passive receiver of knowledge

3. Simulation as a Universal Behavioral Mode:

Children learn the most from play when they have skilled teachers who are well-trained in understanding how play contributes to learning.

4. Gains Related to Relevance and Learning:

Games provide a safe artificial environment within which learners with low self-esteem may feel more inclined to explore, investigate and express themselves.

5. Decision – Making:

It is similar to the real life experience; the problems that students will be found in the real life can be stimulated. So, the students try to solve the problem and make a decision from among alternatives to achieve a particular object.

6. Role Awareness:

Many games enable players to embody different characters thus helping to breed attitudes of tolerance and understanding.

Self-Check Exercise–1

a. is the primary purpose of simulation in education?
a. Entertainment
b. Assessment
c. Skill development
d. Memorization

b. Simulation involves creating _____ scenarios to replicate real-world experiences.

c. True or False: Simulated teaching is limited to theoretical discussions and does not involve practical application.

20.4 Summary

In this lesson we learned about the Flander's Interaction analysis and simulated teaching. Simulated teaching is an innovative approach because students engage in genuine communication in playing their roles. Active involvement stems from participation in worthwhile, absorbing interaction which tends to make students forget they are learning a new skill. Students have the opportunity to try out new behaviors in a safe environment, which helps them develop long-term motivation to master additional skills. In addition to encouraging genuine communication, active involvement, and a positive attitude, the simulated "real life" problems help students develop their critical thinking and problem solving skills. Flanders' Interaction Analysis, developed by Ned Flanders in the 1960s, is a system for observing and analyzing classroom interaction between teachers and students. It categorizes classroom verbal behavior into ten categories, seven for teacher talk, two for student talk, and one for silence or confusion. This system helps in understanding the dynamics of classroom communication, particularly the balance between teacher and student participation. It provides insights into teaching styles, classroom climate, and patterns of interaction, which can be used to improve teaching effectiveness.Simulation and Simulated Teaching, on the other hand, are techniques used in teacher training to replicate real classroom scenarios in a controlled environment. Simulation involves creating artificial but realistic teaching situations where trainees can practice their skills. Simulated teaching goes a step further by having trainee teachers conduct full lessons with peers acting as students. These methods allow for experimentation with different teaching strategies, immediate feedback, and reflection without the pressure of a real classroom. They help bridge the gap between theory and practice, allowing teachers to develop confidence and competence before entering actual classrooms.

20.5 Glossary

Flanders' Interaction Analysis: A system for categorizing and analyzing verbal behavior in the classroom to study teacher-student interaction patterns.
Direct influence: Teacher behaviors that limit or restrict students' freedom of action in the classroom.
Indirect influence: Teacher behaviors that encourage student participation and initiative.
Teacher talk: Verbal behavior by the teacher, including lecturing, giving directions, and praising or encouraging students.
Student talk: Verbal behavior by students, including responses to the teacher and student-initiated talk.
Simulation: The creation of artificial but realistic teaching scenarios for training purposes.
Simulated teaching: A teacher training technique where trainees conduct full lessons with peers acting as students.
Interaction patterns: The typical ways in which teachers and students communicate in the classroom.
Classroom climate: The overall atmosphere or environment in a classroom, influenced by teaching style and interaction patterns.
Reflective practice: The process of analyzing one's own teaching performance to improve future practice.

20.6 Answers to Self-Check Exercise

Self-Check Exercise– 2

2. Skill development
3. immersive and interactive
4. False

20.7 References/Suggested Readings

11. Amidon, E.J. & Flanders, N.A. (1963). Interaction Analysis as a feedback system. Interaction Analysis Theory, Research and Application. E.J. Amidon and J.B. Hough. Eds. Philadelphia: Addisn-Wesly publishing company. Inc. Chapter 1: 121 – 140.

12. Amidon, E.J. & Hunter, E. (1966). Verbal Interaction in the classroom: The verbal interaction category system. Interaction Analysis Theory, Research and Application. E.J. Amidon and J.B. Hough (Eds.) Philadelphia: Addison – Wesley Publishing Company. Inc. Chapter 2: 141 – 149.

13. Federal Republic of Nigeria (FRN). (2013). National Policy on Education (6th edition) Abuja: NERDC Press

14. Gay, L.R.(2000). Competencies for Analysis and Application (5TH ed) Educational Research Florida International University. Pp 448-457

15. Hafix, M.M; Naseerud din, M &Ishitiaq, H. (2008).Teacher-student verbal interaction patterns at the tertiary level of education. Contemporary Issues in Education Research 1, 1: pp 45-50

16. Inamullah, M. (2005). Patterns of classroom interaction at different educational levels in the light of Flanders' interaction analysis. PhD. Thesis Retrieved Sept.26, 2012, from http://eprintshec.goal.pk

17. Jasraj, Kaur. (2013). Flanders interaction analysis category system (FIAC). Distance Education PUP

18. Newman, M. (2001). PEPBL Methodology, Working Paper 6: Flanders Interaction Analysis.

19. Niki,F.R. (2011). Flanders Interaction Analysis. Retrieved April 23, 2015, from http://www.slideshare.net/selvabarady/flanders-interaction-analysis

20. Tisher, R.P. (2007) Classroom Interaction Analysis: the new religion. Journal Research in Science Education 2: 35 – 49.

20.8 Terminal Questions

- Explain how simulated teaching can prepare educators for real classroom challenges.Discuss the advantages of using simulation in teacher training programs, providing examples of how it can be implemented across different subject areas.

****